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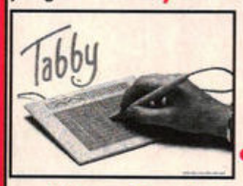

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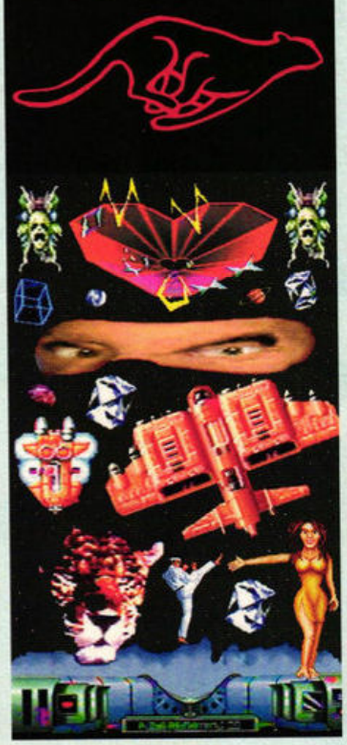
CONT

JAGUAR

This month...

- **JAGUAR NEWS**
  The latest goings-on in the 64-bit console world
- **REVIEW: EVOLUTION: DINO DUDES**
  Does this puzzle game really make the most of the Jaguar's capabilities?
- **PREVIEW: TEMPEST 2000**
  The first in-depth look at this arcade classic
- **PRESENTING... JEFF MINTER**
  The Jaguar's most ardent supporter. Probably

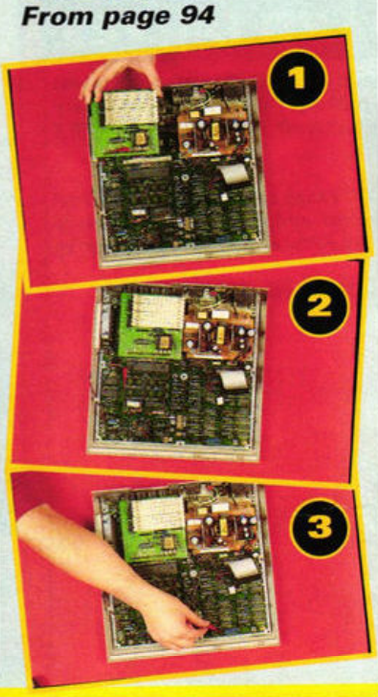


GET INTO THE DIGITAL MUSE!

Discover how direct to disk recording can help make your life easier *starting on page 19*

BUMP UP YOUR RAM

Increase your ST's potential with our step by step guides
From page 94



COVER DISK 57

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Frantic shooting action

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ST FORMAT
ABC Jan – July 1993 52,810 Member of the Audit Bureau of Circulations

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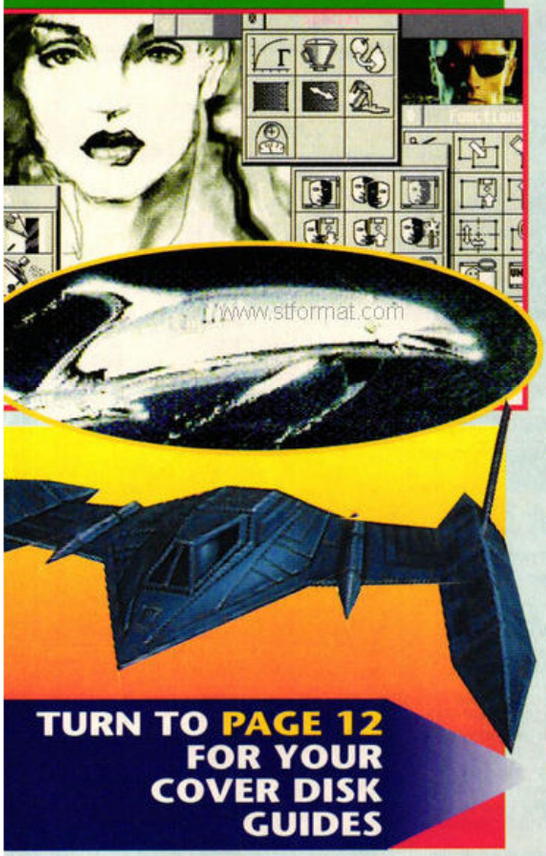
CHAGALL

Create amazing pictures with this incredible image processing program on page 38



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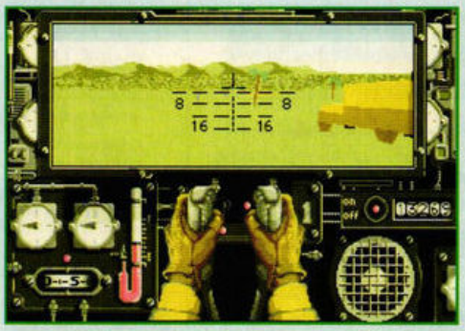

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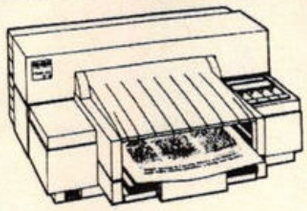

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BIG BROTHER IS WATCHING YOU

Computer and video games in Europe are to be subject to a classification system, organised by the European Leisure Software Publisher's Association (ELSPA). The system, which applies to all ELSPA members, is based on self-regulation, where each firm has the chance to provide specific age groups on the cover of their games.

"Parents tend to find video games complex and inaccessible"

The rating system introduces four categories of game: 0 to 10 years, 11 to 14, 15 to 17 and 18 plus. They are designed to give parents a clearer understanding of the content of each game, so that they can decide its suitability for their children. "The problem is compounded by a lack of parental understanding of video games," says Mark Strachan, chairman of ELSPA. "Unlike previous generations' toys, parents tend to find [video games] complex and inaccessible so they have viewed them with a certain amount of unwarranted suspicion."

Self-regulation was welcomed by the 60 games companies which are part of ELSPA. Geoff Brown, chairman of US Gold, explained "The voluntary age guidelines [are] a major step forward in assisting parents to choose appropriate games for their children. We intend to introduce the system to US Gold's range of games at the earliest opportunity."

This was echoed by Paul Patterson, sales director at Ocean Software, which includes the Hit Squad budget label, who added: "Despite receiving its fair share of bad press, the industry has acted quickly and responsibly, and Ocean will be giving their full support to the scheme."

Importantly, the classification is not legally binding, so it is up to the individual retailers to prevent younger children buying games which are unsuitable.

Roger Bennett of ELSPA told *ST FORMAT:* "We have no retail members, but retailers are very supportive of our scheme – indeed, it was called for by them above any other body – and they are going to be able to use the age guidelines to ensure that games with an age classification are not bought by minors. It's worth remembering that retailers are covered by the Video Recordings Act [VRA], which is legally binding."

This means that games which fall foul of the VRA will continue to be classified in the same way as films and videos. The vast majority of games, however, are exempt from VRA classification, and it is these games which are covered by the ELSPA system.

The new system was announced by the ELSPA panel including Peter Luff, MP for Worcester. "A voluntary system that is effective – as this one promises to be – is always preferable to a statutory one," offered Mr Luff.

However, *ST FORMAT* believes that a compulsory classification system was looming, so cynically the move could be seen as a delay, or a prevention, of the legal statute. The voluntary scheme is obviously open to abuse by less reputable software publishers, so a legal system would still seem likely at some point. We shall see...

Almost every game you buy from now onwards should be labelled with this sticker, with games publishers replacing the "4"s with "6"s depending on the targeted age group. The dated, slightly sad character is to be known as "Monitor Man." Oh dear.

SNIPPETS

On the move

Compo Software have moved to a new address, they can now be contacted at Compo Software, Unit 3, Green Farm, Abbotts Ripton, Huntingdon, PE17 2PF. Their new phone number is ☎ 0487 3582 and the Compo Helpline number is ☎ 0487 3521.

Analytical stuff

After *Cubase Audio,* Steinberg continue their Falcon support with *Audio Spector,* a real-time spectrum analyser. The program combines precise analytical display with professional measuring of analog and digital audio sources and is suitable for both studio and live use. For details of price and availability contact Harman Audio on ☎ 081 207 5050.

Imagine that

Golden Image have put together a special bundle including an AlfaScan 256 greyscale handscanner and latest versions of *Touch Up, Merge-It* and *Migraph Junior OCR.* The bundle is on sale for £135, give Golden Image a ring on ☎ 081 365 1102.

Hacking update

If you were enthralled by Channel 4's recent program on hackers and phone phreakers then you're going to love *The Hacker Crackdown* by Bruce Sterling. It tells the true story of the US Secret Service crackdown on hackers in 1990 and the results of the subsequent court cases. The book costs £6.99 from Penguin and it's a good read, ISBN number 01-4017-7345.

Miccy hackers about

ST FORMAT's BBS had the unfortunate experience of being hacked into with some childish git (to use Clive's expression) changing welcome messages, deleting user information and erasing software from the hard drive.

Our BBS uses the *Michtron BBS* software, usually regarded as being hacker-proof. Someone has discovered a back door enabling them to give themselves higher access and change parts of the system. If you run a Michtron BBS then keep an eye on your userbase, the two suspect names we recovered called from South Wales. If you couldn't log onto the *ST FORMAT* BBS, or if your status has been changed since you last called leave a message for the sysop. The *STF* BBS is on 0225 465977.

24 hour *Calamus* support

Over 750 *Calamus* fonts are now available from the Desktop BBS, online 24 hours a day on 0782 541305. The Desktop BBS provides comprehensive support for *Calamus* owners at speeds up to v42bis with a library of over 2,000 pieces of DTP clip art.

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PREVIEW: PAPYRUS

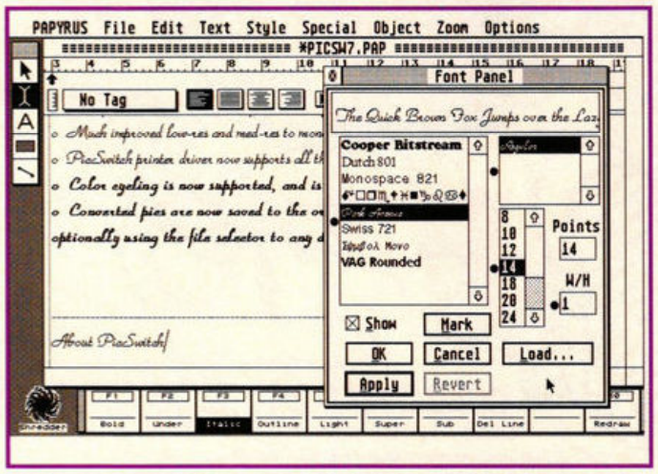
***Papyrus* is a powerful new document processor from Hisoft, fully compatible with MultiTOS, SpeedoGDOS and Signum 2 fonts.**

This means it is just as much at home on a standard 1MByte high resolution ST setup using floppy disks and Signum fonts as it is on a 4MByte Falcon using the hard drive and a set of SpeedoGDOS fonts.

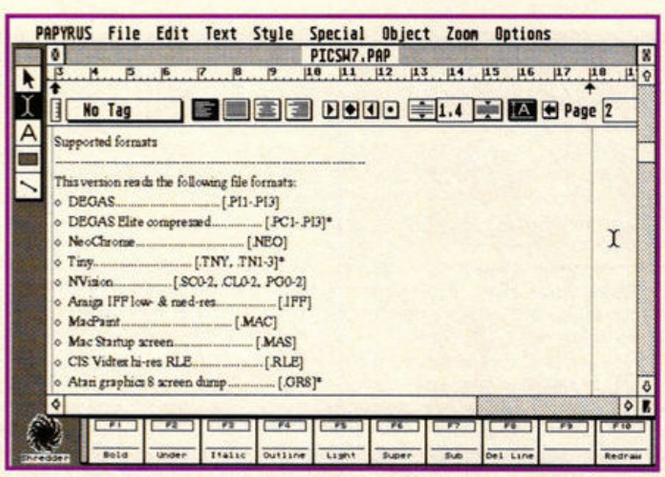
Papyrus is packed with features usually found on professional systems used in publishing, with page preview at various sizes, export options in DOS, Unix and Mac formats, the ability to save text in RTF (Rich Text Format) and ASCII, indexing, tables, footnotes, columns and graphic support... and the list goes on.

The main display is similar to *AtariWorks*, with an icon bar along the top of the text window enabling you to quickly access many of the program's functions. The new Atari keyboard shortcuts are in place and a function key display across the bottom of the screen looks like *First Word Plus*. *Papyrus* is potentially the best ever word processor for the ST, keep an eye out for the full review in *ST FORMAT* soon.

Papyrus is priced in keeping with its professional status at £129, call Hisoft on ☎ 0525 718181 for more information.



Using SpeedoGDOS fonts on a 4MByte ST is simple with *Papyrus*, the Speedo fonts load automatically when you run *Papyrus* and you simply select the font you want to use from the Font Panel dialog box.

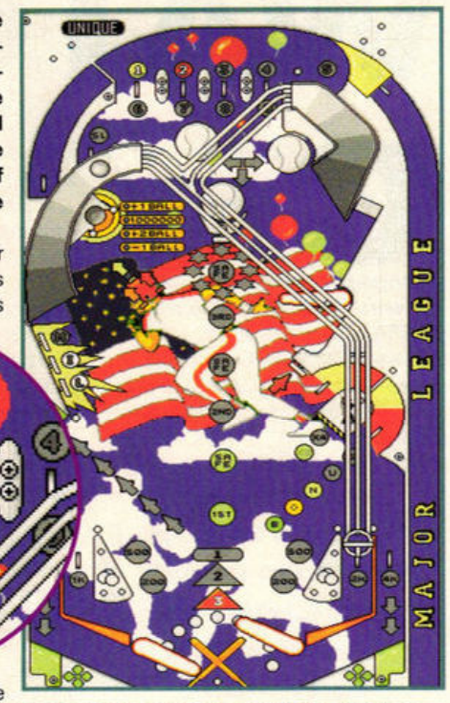


***Papyrus* is definitely a program worth considering if you have an ST with at least 1MByte of memory and a high resolution monitor; it provides the look and feel of a powerful Mac word processor on your ST.**

PINBALL OBSESSION

Fresh-faced software house Unique Development Sweden are dipping their toes into the waters of commercial ST games with the imminent release of *Obsession*, a five-table pinball game.

Based on a similar format to 21st Century's *Pinball Dreams*, which has now been coded for the Falcon (see *STF* 52 – and if you missed it see page 62 for your copy), *Obsession* is designed for use on the STE and Falcon.



This is Balls and Bats, one of five pin tables on offer from Unique Development. With Dollar Dudes, Aqua Adventures, Techno Tracker and Maximum Overdrive, could this simple game become an Obsession?

Using the later machines' five-channel stereo sound capability, along with 50Hz hardware scrolling and at least 32 colours on-screen, Unique Development promise us a second-to-none pinball sim.

THE KING OF ROCK 'N' ROLL

Forget Zool, forget Bub and Bob, forget Sonic *(who? – Ed)*, Caspar Clam's about to arrive on your ST. His game, *Rock 'n' Roll Clams*, is programmed by newcomers Caspian Software, who are committed to producing games for the ST.

Indeed, *Rock 'n' Roll Clams* is to feature an enhanced mode for the STE and Falcon, which makes use of the newer machines' blitter function for enhanced graphics, and there's an option to use Atari's new Power Pad game controllers. Although it's a platform game,

DIFFERENT VECTORS

A new updated version of *DA's Vector* is almost ready for release, *DA's Vector Professional* is a vastly improved version of the original 24-bit vector drawing and animation package from CGS ComputerBild (☎ 081 679 7307).

DA's Vector Pro includes new blending functions, new vectorisation options, new colour gradients, new fills, multicopy features, a completely revamped animation studio and 40 new fonts that are also compatible with other Digital Arts programs such as *DA's Layout* and *Didot Professional*. The price for this new version is £249. CGS are also distributing an accelerator board for the TT called CaTTamaran. The board fits internally without soldering and speeds up the TT's CPU by 150%, its FPU by 185% and increases overall RAM access speed by 145%. The board is expected to cost about £69.

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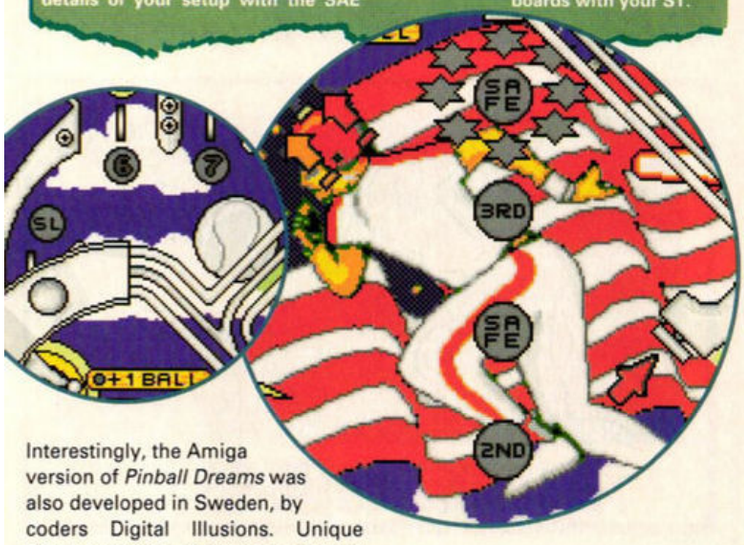
KEYBOARD CLUB

If you want to get the most out of your Yamaha keyboard and ST setup then send an SAE to Atari-Yamaha User, 49 Summerfield Road, Wythenshaw, Manchester M22 1AE. Enclose details of your setup with the SAE and you receive details of the best way that you can perform memory dumps, use MIDI files and even more hints and tips for getting the most from Yamaha PSS and PSR keyboards with your ST.

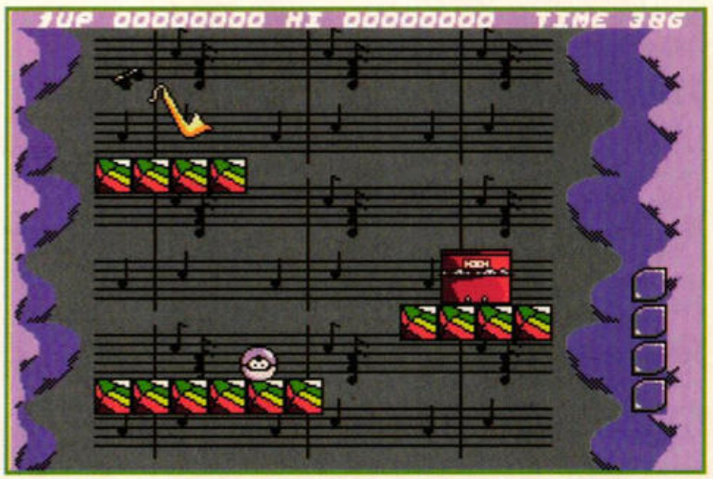


Interestingly, the Amiga version of *Pinball Dreams* was also developed in Sweden, by coders Digital Illusions. Unique Developments' aim was to gather together the cream of ST demo coders, musicians and graphic artists from all over Sweden, and this is just their first game – they hope to produce many more in a similar fashion.

Obsession is to be distributed in the UK by Merlin at £29.95, with a release date of Friday 1 April *(don't worry, it's not an April Fool! We think...)* The price seems a little steep, but let's reserve judgement until we've seen the game. Expect to see a full review in the next issue of *ST FORMAT*.

Caspian have tried to make *Clams* different. Each of the 100 screens is similar to a pinball table, without flippers, which scrolls up and down. Caspar Clam acts like a pinball, he can bounce off objects in the level. Caspian have included a two-player mode. *Clams* promises to be a challenge for hardened gamers, and cute enough to appeal to kids.

Rock 'n' Roll Clams is to be released in March for all 1MByte STs, STEs and Falcons, priced £14.99. Grab the next issue of *ST FORMAT* out on Tuesday 8 March for a full review.



A typical scene from *Rock 'n' Roll Clams*, yesterday. This is no ordinary platform game – it's a cross between platform and pinball genres? Sound weird? You should try the two-player mode, it promises to be fiendishly competitive.

ST FORMAT

PIRACY

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- **REVIEWS OF THE LATEST SOFTWARE AND HARDWARE**
- **MASSIVE PREVIEW OF *ALIEN VS PREDATOR***

ON SALE TUESDAY 5 APRIL DON'T MISS OUT!

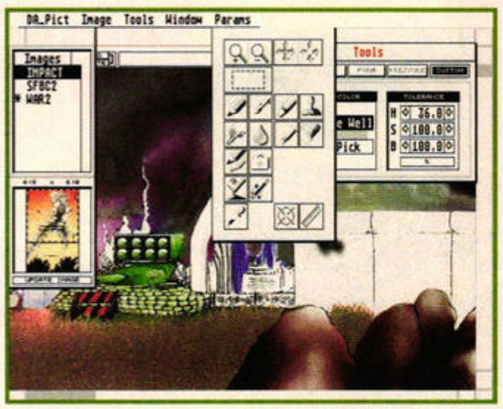
PREVIEW: DA'S PICTURE

CGS just keep churning out high-powered graphics software for the Falcon and STs with graphics cards, the latest 256 and true colour graphics package to roll out is *DA's Picture* by Digital Arts.

DA's Picture is endowed with dozens of drawing and painting tools making it one of the most advanced picture manipulation programs available for Atari machines. The program boasts a sweeping range of drawing tools including various smear effects, pens, chalk, fills and masks and a special tool for erasing any modifications to the picture without altering the original image beneath. This means that if you have used half a dozen tools and effects over an area you can erase just the parts you don't like rather than using an all purpose undo action.

Each tool can be configured so that its size, shape and pressure can be altered, a special parameter called Runout Time can be adjusted so that the effect of the tool fades after a certain time, just as if the paint on a brush is running out.

DA's Picture is another module based program; external modules can be added to provide extra functions to the program. Nine modules included are Touch, Invert, Noise, Grey Noise, Blur, Sharpen, Mask, Contour and Custom Filters. With all these features and tools, *DA's Picture* looks set to be another winner for CGS ComputerBild (☎ 081 679 7307) and costs £149.



▪ *DA's Picture* hard at it with a bunch of images in memory and some of its toolboxes on display, most of the tools lead to sub-menus enabling them to be configured individually.

DON'T MISS OUT ON *ST FORMAT*

MAG*SAVE

Banish those I-can't-find-my-copy-of-*ST FORMAT* blues by ordering your copy of the magazine direct from your newsagent. As well as ensuring that you get your copy without the fuss of having to search all over town for it, you get a completely pristine copy – nobody's going to have had the chance to get their grubby fingers all over it. All you have to do is what thousands of other people are already doing – just fill out the coupon below and give it to your newsagent who's happy to keep hold of *ST FORMAT* for you. You could even have it delivered to your front door, making life even easier for you.

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GREMLIN CONTINUE ST SUPPORT

▪ *Premier Manager's* sequel is astonishingly different to the first game. Honest. OK, so it doesn't look much different, but it is. Totally. Ah, good old Bath City. Second to none.

Gremlin Graphics have announced two major full-price ST games, and with it comes a pledge to continue supporting the platform.

The most interesting expected release is *Premier Manager 2*, the sequel to Gremlin's best-selling football management game. From its release until recently, *Premier Manager* rode very high in the ST chart. Gremlin intend to capitalize both on that success, and the large sales of *Premier Manager 2* on other formats.

The advantages of *Premier Manager 2* over its prequel include improvements in the match graphics, and far more control over the management options. For example, you can now buy and sell players throughout Europe, and use training camps to exercise your players.

To be released shortly is *Lotus Trilogy*, a compilation of the three *Lotus* driving games released over the last three years. The original *Lotus* got a respectable 86% back in issue 18.

Gremlin's Steve McKevitt told us "There's still a market for big games on the ST. Last year we released *Zool*, *Premier Manager* and *Lotus 3*, and they all sold in large numbers. *Premier Manager 2* is a conversion of the Amiga title, which did particularly well." Look out for a review of *Lotus Trilogy* in next month's *ST FORMAT*. *Premier Manager 2* is to be released for the ST in June, just in time for the World Cup, which England aren't in, incidentally, in case you haven't heard.

▪ Although it's mainly text-based, *Premier Manager 2* has some pretty graphics to liven it up.

▪ Just like in the original, you keep control of all stages in the development of a footy team. There's far more to do here - not for fair-weather supporters.

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Letter quality 24-pin dot-matrix technology is taken to its limits in the versatile, high performance of the new NEC Pinwriter™ P2Q. Print is delivered at a fast 96 characters per second (cps) in true letter quality mode and 192 cps in draft mode.

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COVER DISK

THIS MONTH'S DISK

Here we have another wonderful selection for you on this month's Cover Disk

Holocaust
An action packed vertically-scrolling shoot-'em-up – another great exclusive from *ST FORMAT*. 1MByte only.
Size: 369K **Page: 12**

Protect 6
Useful memory resident virus detector that checks all your disks.
Size: 6K **Page: 15**

UVK 6.0 Demo
Exclusive *ST FORMAT* demo of the completely new version of the *Ultimate Virus Killer*.
Size: 115K **Page: 16**

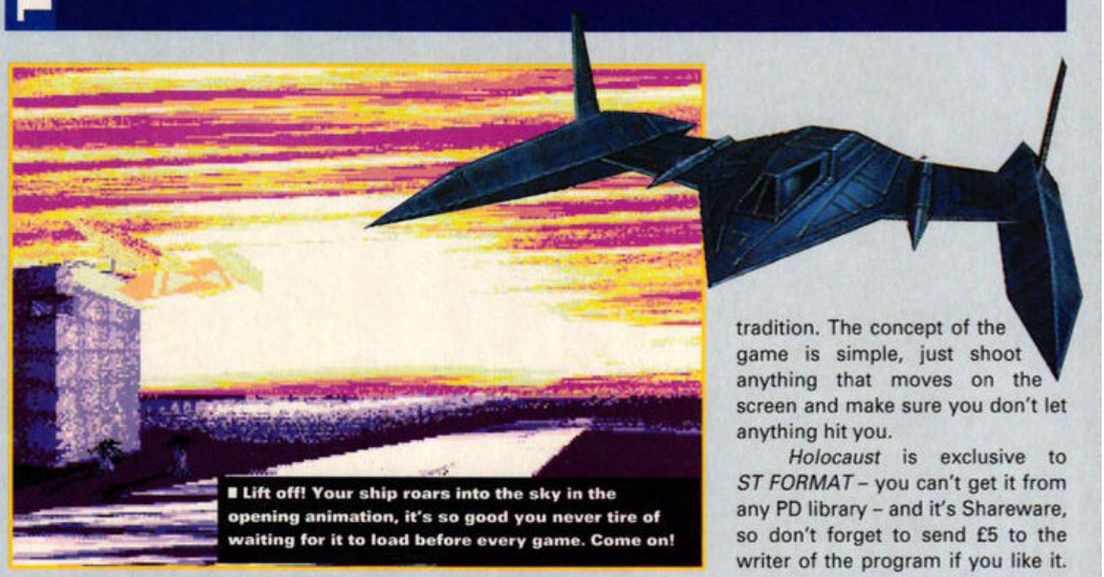
Thought!
Thought! is a working demo of the unique ideas processor and development tool from Titan Designs. 1MByte, high resolution only.
Uncompressed size: 131K **Page: 14**

Tri-Heli 2
Flying, collecting and dodge the aliens arcade-style game.
Uncompressed size: 194K **Page: 14**

Sebra
If you want to use *Thought!* on a colour system then you need the *Sebra* mono emulator.
Size: 12K **Page: 16**

***Goal!* Editor**
If you want to see how Ryan Giggs gets on playing in goal then use this brilliant team editor. Requires the full version of *Goal!*
Size: 61K **Page: 14**

Cover Disk Backup
Backup your Cover Disk before it falls under a passing road-roller.
Size: 13K **Page: 15**



■ Lift off! Your ship roars into the sky in the opening animation, it's so good you never tire of waiting for it to load before every game. Come on!

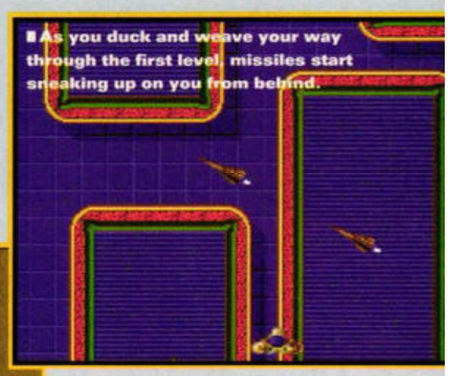
HOLOCAUST

BY: DATTRAX SOFTWARE
RESOLUTION: LOW
MACHINE: ALL STS, NOT TOS 2.6
MINIMUM MEMORY: 1MBYTE
FOLDERS: HOLOCAUS.T, AUTO, HOLODATA
FILES: HOLOGAME.PRG, READTHIS.NOW, 34 FILES IN HOLODATA FOLDER
SIZE: 369K
JOYSTICK REQUIRED
GET STARTED WITH: SEE BELOW

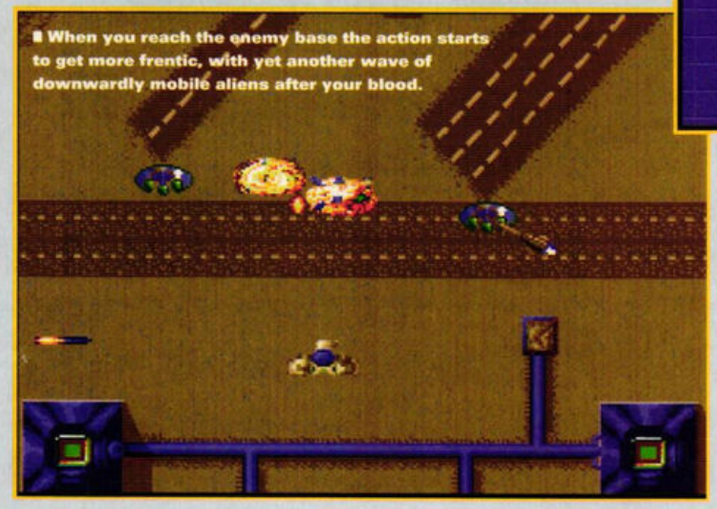
***Holocaust* is a brilliant and** addictive, fast moving shoot-'em-up in the classic *Xenon 2* tradition. The concept of the game is simple, just shoot anything that moves on the screen and make sure you don't let anything hit you.

Holocaust is exclusive to *ST FORMAT* – you can't get it from any PD library – and it's Shareware, so don't forget to send £5 to the writer of the program if you like it. Unfortunately the *Holocaust* data files are so big that the game only runs on STs with at least 1MByte of memory, so if you've only got 512K then this is another good reason to upgrade your ST.

Holocaust has music, intro animations and super sound effects that you can turn off. The animations load from disk every time they are used, disabling them speeds up the start of a new game. The game is joystick controlled, you basically fly and shoot everything in sight. You only have one



■ As you duck and weave your way through the first level, missiles start sneaking up on you from behind.



■ When you reach the enemy base the action starts to get more frentic, with yet another wave of downwardly mobile aliens after your blood.

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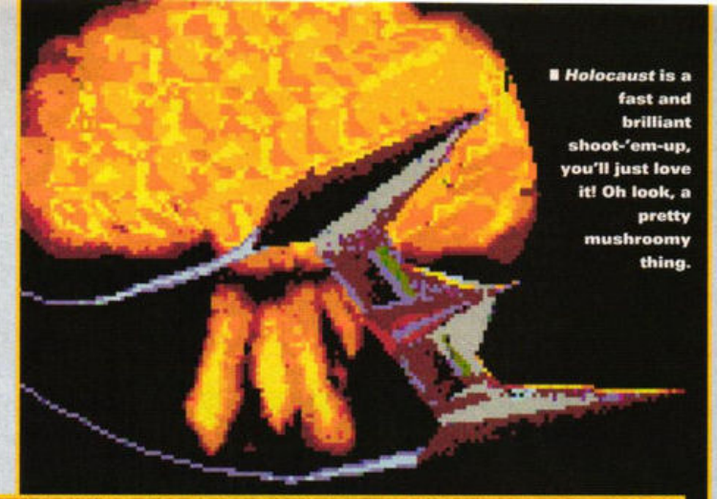
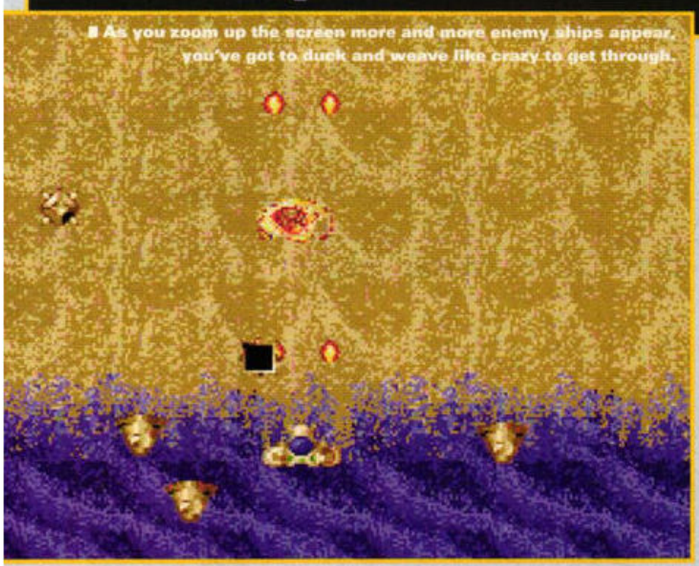


■ *Holocaust* is a fast and brilliant shoot-'em-up, you'll just love it! Oh look, a pretty mushroomy thing.

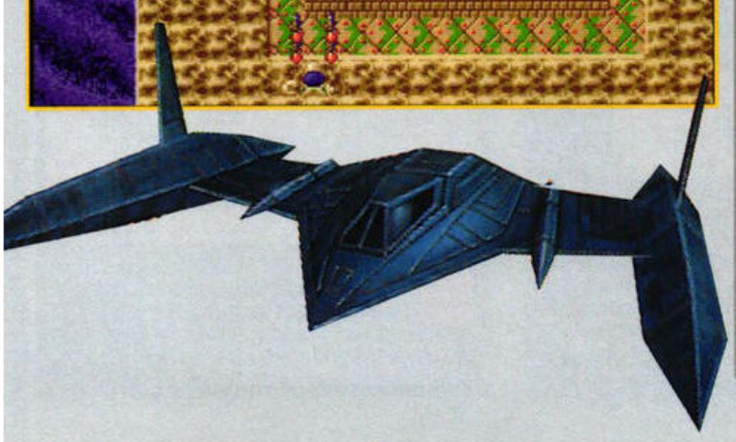


■ As you zoom up the screen more and more enemy ships appear, you've got to duck and weave like crazy to get through.

ship and after a number of hits you're destroyed and have to start from the beginning again, so make sure you dodge those aliens!

To play *Holocaust* you must copy everything in the HOLOCAUS.T folder – that's the Auto folder and the HOLODATA folder – to a blank disk, don't copy the HOLOCAUS.T folder itself because the game won't work if you do. Once you've copied the two folders to the blank disk put it in drive A and press the reset button, *Holocaust* now loads and runs so you can get in a few solid hours of good, character building, alien blasting action.

■ When you manage to fight your way through the hordes to the end-of-level boss, it takes a lot of shooting to kill him.



TRI-HELI 2

BY JANET DEAN AND KATHY STEINBACH
MACHINE: ALL STS, NOT TOS 2.06
RESOLUTION: LOW
MINIMUM MEMORY: 512K
FILE: TRI_HELI.TOS
JOYSTICK REQUIRED
UNCOMPRESSED SIZE: 194K
GET STARTED WITH: SEE BELOW, TRIHELI2.DOC

■ Having a practice at flying in and out of holes, remember that you are limited to 100 shots for each diamond you collect.

***Tri-Heli 2* is a frustratingly** difficult sideways-scrolling strategy game in which you fly a small helicraft across the landscape and collect diamonds buried in the ground. You then fly back to base with the diamonds. How do you get to the buried diamonds? With bombs. You fly along, hover over the buried diamonds and drop bombs on them, the bombs smash huge holes in the ground but leave the collectable baubles strangely unmarked. You then swoop down into the hole, pounce on the beckoning jewel and fly back to base with it. Twice.

Sounds easy, huh? There's just one small problem, when you blast a hole in the ground it triggers a strange kind of defence mechanism. Huge asteroids appear directly over any holes you have made and float – unrealistically slowly – down to fill in the holes. Basically you have to dig, nip in, scream out again and zip back to base before the rocks drop on you.

■ A colourful opening screen introduces *Tri-Heli 2*, note the subtle plea for money on the intro screen.

That's not all. After every level the ground level gets higher, this means that the slow rocks don't have to fall so far to get you. After you reach the third level an over-flying plane drops laser bases and things to try and shoot you. It gets progressively harder and harder, but it's fun.

To play *Tri-Heli 2* you have to copy TRI_HELI.TOS to a blank disk and unpack it. Double-click on TRI_HELI.TOS and wait while the game expands itself, after a while it's finished. Now you just have to double-click on TRIHELI2.PRG to play the game.

Tri-Heli 2 is Shareware, so don't forget to send of your cash donation to the authors of the game. Have fun.

■ Just zapped by a laser base, the action on the higher levels gets more and more frenetic as time goes on.

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COVER DISK COMPETITION

WIN £50

You could win £50 by entering our Cover Disk Menu competition.

All you have to do is write a menu program for the Cover Disk that works on all STs in medium resolution colour and in high resolution mono. We tried to get Clive Parker to write it but he's crap at programming so it's all up to you. There are several specific things that the menu program must do. It needs to display the *ST FORMAT* logo on the intro screen, the contents of the disk and the current disk number on screen from an ASCII script file. It also needs to be able to move files from one disk to another on single drive systems and to run self-extracting LZH files after they have been transferred to a blank disk. And that's all there is to it. Send your disks to Cover Disk Competition, *ST FORMAT*, 30 Monmouth Street, Bath, BA1 2BW. Please send entries in by Friday 8 April.

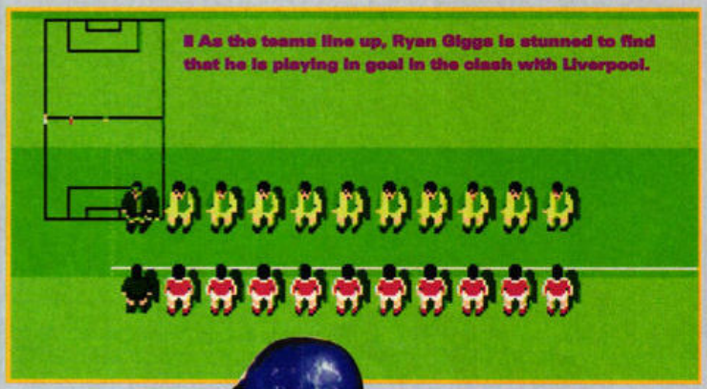
GOAL! TEAM EDITOR

BY: STUART AYTON
MACHINE: ALL STS, NOT TOS 2.06
RESOLUTION: LOW
MINIMUM MEMORY: 1MBYTE
FOLDER: GOAL!_CH.EAT
FILES: CHEAT!!!.PRG, READ_ME.NOW
SIZE: 61K
HARD DRIVE INSTALLABLE
GET STARTED WITH: SEE BELOW, READ_ME.NOW

If you've got *Goal!* you need this utility, it's an enhanced team editor that enables you to change the attributes of the players in any team in much greater detail than the editor built into the game itself.

The *Goal!* Cheat enables you to change the players' positions and increase the number of players on the subs bench to four instead of two. To edit your teams run CHEAT!!!.PRG from the backup copy of your Cover Disk, when the file selector appears put your *Goal!* disk in the drive and load one of the team data files. You can now choose teams and move players around at will. When you save the data you must not use the original *Goal!* game disk; always save data to a blank disk.

We only reviewed *Goal!* last month and there's already a team editor for it.



As the teams line up, Ryan Giggs is stunned to find that he is playing in goal in the clash with Liverpool.

THOUGHT!

BY: TITAN DESIGNS
RESOLUTION: HIGH AND VGA 640x480
MACHINE: ALL STS, FALCON030
MINIMUM MEMORY:
HARD DRIVE INSTALLABLE
FILES: THOUGHT.TOS
UNCOMPRESSED SIZE: 131K
GET STARTED WITH: SEE NEXT COLUMN

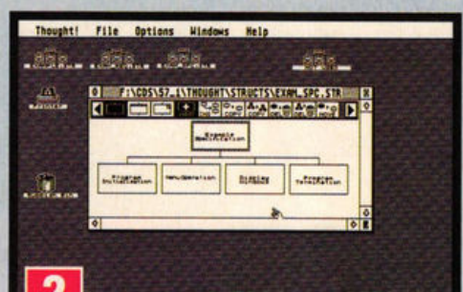
***Thought!* is quite an unusual** program to say the least, it's described as an ideas processor in its promotional blurb but you'll probably have more idea of what it does if you think of it as an outliner with added bells and whistles. *Thought!* is an ideas planner, database and filing system all combined into one program.

Thought! has been designed as a development tool to enable you to plan out everything to do with a project you are working on and works in the same way as a flow diagram describing a program. Your idea can be broken down into its component parts and mapped out for you.

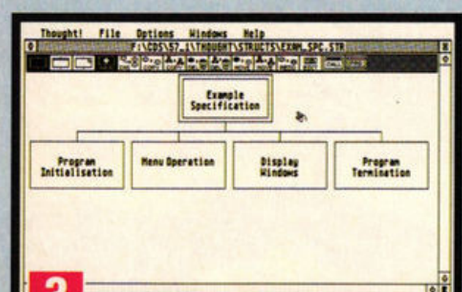
Say you were working on a manual for a program you have developed for the ST, you can use *Thought!* as a shell program enabling you to plan out each chapter in advance, you can call the program you are writing about

DEEP IN THOUGHT!

1 Select Open from the File menu and choose the first file, EXAM_SPC.STR. A work window opens and displays the structure of the example in the window and a row of icons along the top.



2 There are five Symbols in the first structure, the one at the top of the window is the Main Symbol and cannot be deleted. All other Symbols in a structure derive from the Main Symbol.



3 Enlarge the window so you can see all of the icons across the top of the screen. You can enlarge the Symbols on-screen to study them by selecting View Large from the Windows menu.

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COVER DISK BACKUP

BY: BRIAN TILLEY
MACHINE: ALL STS
RESOLUTION: ALL RESOLUTIONS
MINIMUM MEMORY: 512K
FOLDER: BACK_UP
FILES: BACK_UP.TOS
SIZE: 13K
HARD DRIVE INSTALLABLE
GET STARTED WITH: SEE NEXT COLUMN

"Oh no, I've deleted my *ST FORMAT* Cover Disk. What can I do now?" cries an anguished reader who forgot to use our Cover Disk *Backup* program to safeguard his valuable software.

Look, it's easy. Just run BACK_UP.PRG on the Cover Disk and follow the simple instructions on-screen and you've soon got a superb backup copy of the Cover Disk. Stick it in your disk box and make another backup copy, just to be on the safe side. Five minutes can save you hours of grief later when high sunspot activity may wipe your Cover Disk.

PROTECT 6

BY: LARS-ERIK OSTERUD
MACHINE: ALL STS
RESOLUTION: ALL RESOLUTIONS
MINIMUM MEMORY: 512K
FOLDER: PROTECT6
FILES: PROTECT6.PRG, PROTECT6.TXT
HARD DRIVE INSTALLABLE
SIZE: 6K
GET STARTED WITH: PROTECT6.TXT, SEE BELOW

You don't always have time to run a virus killer every time you get a new PD disk – although you should – so you need a memory resident virus detector burbling away in the background to check any disk you may put in the drive.

Protect 6 is just that, a tiny little program you can tuck away in the Auto folder of your boot disk and forget about until it shouts at you. If *Protect 6* detects a disk with an executable boot sector, a good sign of a virus, it flashes the screen and yells at you. Er, well to be more precise, it just dings a bell. In the top left corner of the screen a small box appears that displays the contents of the disk boot sector on a scrolling line, so you can see if there's any text hidden there. You have the option of erasing the boot sector or ignoring it if it's a harmless disk.

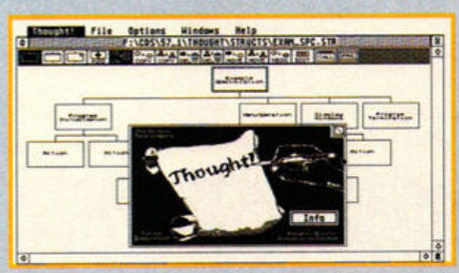
All you have to do is copy PROTECT6.PRG to the Auto folder of your boot disk, it loads into memory the next time you boot your ST. That's all there is to it!

EXTRACTING COMPRESSED PROGRAMS

These decompressing instructions assume a single drive setup set to medium resolution

1. Format a blank disk and mark it as Disk B. This is the destination disk.
2. Get your backup copy of your Cover Disk, mark it as Disk A then put it into the disk drive. This is your source disk.
3. Click on the Drive A icon, a window opens with the folders on the Cover Disk displayed within it. If you can't see the Drive B icon, move the window so you can see it.
4. Double-click on the folder containing the file you want to copy so you can see the contents. Click on the file you are going to copy and keep the mouse button pressed, now drag the file over the top of the Drive B icon.
5. When the Drive B icon turns black release the mouse button. The Copy Files dialog box appears, click on OK to start the copy process.
6. An alert box appears telling you to put Disk B into Drive A. Do so, and click on OK. Your ST now tells you when to swap disks, follow the instructions on-screen and don't mix up the disks.
7. When the file is copied over completely, put the Cover Disk away and close all windows on screen. Put Disk B into the drive and click on the Drive A icon.
8. When the window opens double-click on the TOS file to start the extraction process, after a few minutes a message tells you to press <Return>. Follow the instructions – it knows best, you see.
9. You can now delete the TOS file from disk B. Follow the instructions in the magazine for the particular program you are using and read all doc files on the disk.
10. Repeat as necessary for any other self-extracting TOS files on the Cover Disk.

ST FORMAT WARNING
Never use any virus killer on a commercial game disk, the program thinks that game disks are infected, if you "kill" the virus on a game disk you destroy the game.

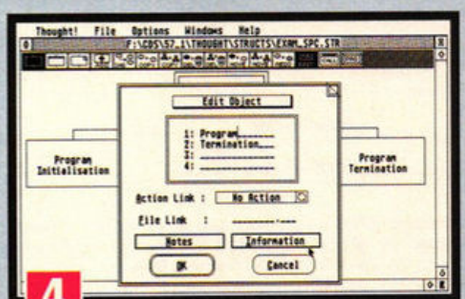


Just a moment, this is a programmers flow chart isn't it? No, it's the *Thought!* ideas processor, a brilliant way to structure any project.

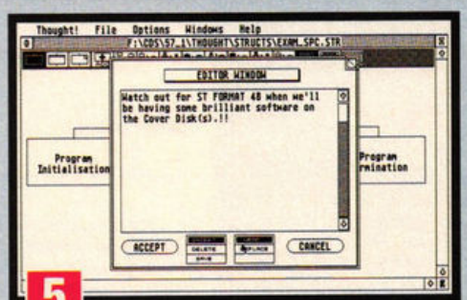
for reference and call your word processor to write about your program. Another example use is in design, if you are creating a new building you can plan out each floor individually by using *Thought!* process boxes to describe each room. Any changes and alterations can be quickly made without affecting the overall structure. Before you can use the *Thought!* demo you have to decompress it.

Copy the THOUGHT.TOS file to a blank disk and double-click on it to decompress it, after a few minutes the program is unpacked and ready to run. You can now delete THOUGHT.TOS from the blank disk. To run *Thought!* double-click on THT_DEMO.PRG and wait for the program to load, once it's loaded you then get a message saying that GDOS isn't loaded but just click on the OK button.

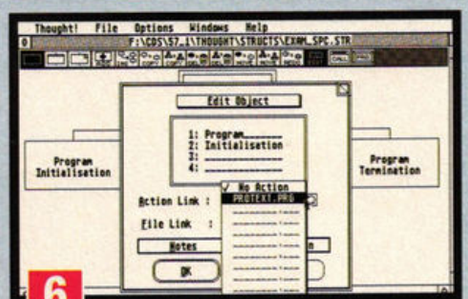
The best way to understand *Thought!* is to experiment with the three supplied example files, there's an example programmer's structure, requirement structure and an example specification structure. This version of *Thought!* is fully functioning except for the saving options, so get designing, you never know what you can come up with.



4 **Click on the Edit icon and then select one of the Symbols, a dialog box opens enabling you to edit the text in the Symbol, add notes, information and link programs and text files.**



5 **Clicking on the Notes button opens an editor window that enables you to add notes about the subject represented by the Symbol. Your notes can be edited at a later date or saved as a text file.**



6 **If you want to link a program to the Symbol, perhaps a word processor, you can enable it by selecting it from the Action Link button. This displays a menu of linked programs you can assign.**

UVK 6.0 DEMO

BY DOUGLAS COMMUNICATIONS, RICHARD KARSMAKEERS
RESOLUTION: MEDIUM OR HIGH
MACHINE: ALL STS, FALCON030
MINIMUM MEMORY: 512K
HARD DRIVE INSTALLABLE
FOLDER: UVK_DEMO
FILES: READ_ME.TXT, UVK_6_0.PRG
SIZE: 115K
GET STARTED WITH: SEE BELOW

The best virus killer for the ST has just got even better! The *Ultimate Virus Killer (UVK)* has undergone a complete redesign and *ST FORMAT* has an exclusive demo version for you to check out and use. A review of the full version of *UVK 6.0* and more information about viruses turn to page 28.

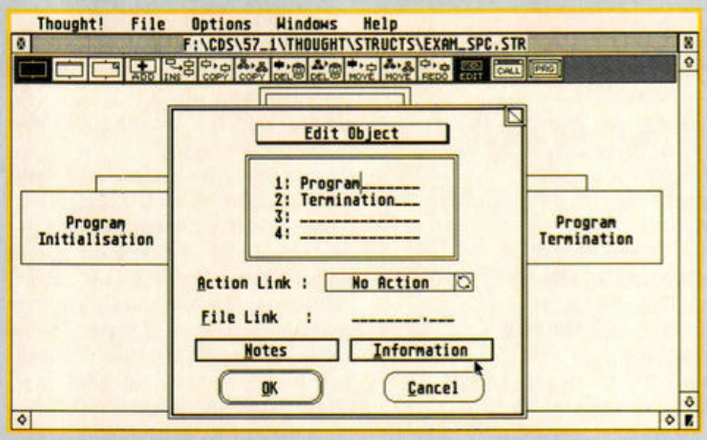
This useable demo version of *UVK* has a few of its features disabled, but you can still use the demo program to detect viruses, immunize disks and look at the large list of games and bootsectors the full version can repair.

To run the program double-click on UVK_6_0.PRG on the back-up copy of your Cover Disk and wait for a few seconds while it loads into memory. Only three of the four main options are available in this demo; Seek 'n' Destroy Viruses, Restore Disks and *UVK 6.0* Information.

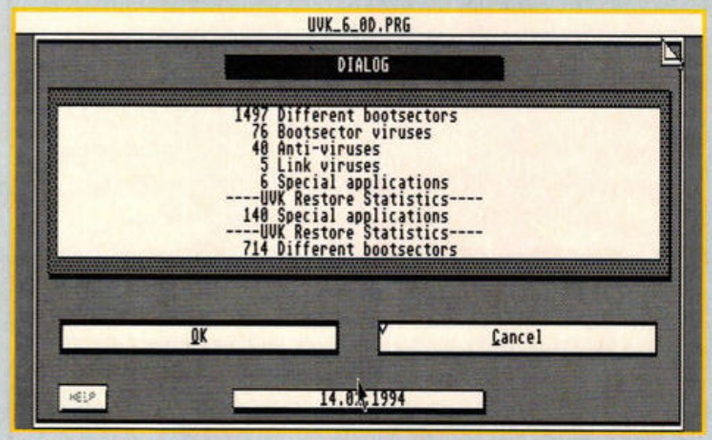
Seek and destroy

To check if any of your disks have a virus on them then click on the Seek 'n' Destroy option at the main menu of *UVK*, this takes you to the disk drive selector. Click on the drive A button and put a disk in the drive, now click on the Bootsector option. *UVK* checks the disk for known and unknown viruses and informs you of the status of the disk. If there is a virus on the disk, the program flashes the screen and beeps a warning, you can't kill any viruses because these options are disabled in this demo.

You can also use the demo to look for link viruses – which attach themselves to other programs – and lists the hundreds of bootsectors that the full version of *UVK* can repair. *UVK* is certainly the best virus killer you can buy, if you want the full version of the program then turn to page 92 to order a copy from our mail order section. It would normally cost £12.99 but it's available at a special price of £9.99 for *ST FORMAT* readers.



■ Just a few of the hundreds of games and programs that the full version of *UVK* can repair.



■ Just look at what *UVK* can do! It can recognise almost 1,500 different bootsectors and repair over 700 games and auto-booting programs.

SEBRA

BY: PATRIK PERSSON
MACHINE: ALL STS
RESOLUTION: MEDIUM OR LOW
MINIMUM MEMORY: 512K, 1MBYTE RECOMMENDED
FOLDER: SEBRA
FILES: SEBRA.PRG
SIZE: 12K
HARD DRIVE INSTALLABLE
GET STARTED WITH: SEE BELOW

Because *Thought!* only runs in high resolution we've given you the *Sebra* mono emulator (again) just so you can run the program if you only have a colour monitor. *Sebra* is the best mono emulator you can get for your ST, that's why we're so keen on it here at *ST FORMAT*.

To use the program just copy SEBRA.PRG to the Auto folder of your boot disk, when you start your ST the program loads into memory and makes your ST think it's connected to a mono monitor enabling you to run high resolution software.

TEN TIPS FOR COVER DISK SATISFACTION

1 Write-protect your Cover Disk by sliding the black tab so you can see through the hole; this prevents you from accidentally erasing data.

2 Make a backup copy using the *ST FORMAT Back-Up* program, see the instructions on page 15.

3 Always read the instructions for the program you are using on the Cover Disk pages and in any document file that is on the disk.

4 Never run software directly from the Cover Disk except the *Back-Up* program, and always use your backup disk.

5 Never try to decompress self-extracting TOS files on the Cover Disk, always copy them to a blank disk.

6 If you have any general problems with your ST, consult your manual. If you are still stuck then write to ST Answers, 30 Monmouth Street, Bath, BA1 2BW.

7 If you can't load, copy or back up your Cover Disk programs then you may have a faulty disk – it happens sometimes. Send the disk and a padded self-addressed envelope to:
ST FORMAT April Disk Returns, PO Box 21, Daventry, NN1 5BU
We pay the return postage. Don't send faulty disks to our Bath or Somerton offices because we don't keep stocks of Cover Disks there.

8 If you are having problems with a Cover Disk program go back and read the Cover Disk pages and any DOC files on the disk. If you still can't get the program running, call the *ST FORMAT* Cover Disk Hotline on ☎ 0225 442244 on Wednesdays between 2pm and 6pm only – we can't accept calls at any other time.

9 If you have other hardware or software queries, contact the manufacturer or publisher. Alternatively, ring the official Atari Helpline on ☎ 031 332 93233 between 6pm and 11pm Monday to Saturday and 8pm and 11pm on Sundays.

10 *ST FORMAT* Cover Disks are double-sided, if you have an old STFM and cannot read the Cover Disk then you should upgrade your ST to a double-sided drive.

WE WANT YOUR PROGRAMS!

We pay for your software – so if you've got anything that's good, original and preferably short that you think really deserves to go on *STF's* Cover Disk, send it with this form and full documentation to Clive Parker, *ST FORMAT*, Cover Disk, 30 Monmouth Street, Bath, Avon BA1 2BW.

Name _____

Address _____

_____

Daytime phone _____ Program title _____

_____ Total size in K _____

On a separate sheet, explain concisely what the program does and why you happen to think it's so brilliant. Remember to: ■ Include on-disk and paper documentation ■ Write your name and address on the disk ■ Use a virus-free disk ■ Keep a copy of your program, because we can't return any programs.

Please sign the following declaration: This program is submitted for publication in *ST FORMAT*. It is wholly my own work and I hereby agree to indemnify Future Publishing against any legal action should copyright problems arise.

Signed _____

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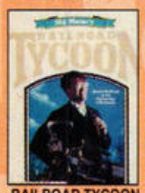
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LET'S GET DIGITAL!

The ability to use the Falcon for direct-to-disk recording is a great attraction... Steve Wright investigates how to get started

equipment and to Koh San Studio for the loan of their premises.

If there's one field in which the Falcon reigns supreme, it's digital audio. The recent appearance of *Cubase Audio* for the Falcon signals affordable integrated professional multi-track digital audio and MIDI sequencing. Another wave of home recording musicians now feel ready to ditch their tape recorders and "go digital" for the first time – and you could be among them.

Direct-to-disk is a form of recording in which audio is recorded directly onto a hard disk (not into RAM). The advantages offered by digital audio over traditional tape-based recording are significant, and, in the music industry, direct-to-disk recording is slowly but surely becoming more of a standard practice.

A hard disk is a random access storage medium – you can go to any part of it in an instant – so doing away with tape means doing away with needing to wait while fast forwarding or rewinding. If this seems a touch trivial, just imagine a traditional recording studio where it is usual for tape to be shuttled back and forth all day long. Especially when some of the top recording studios charge over £100 an hour.

"In the music industry, direct-to-disk recording is becoming standard practice"

LOADS OF BENEFITS

It's not just time and money that can be saved. Direct-to-disk recording enables you to edit and process sound without loss of signal and without accumulating noise. It doesn't matter how much you do to digital sound – so long as it remains in the digital domain its quality does not degrade in the slightest. With tape, even simple things like making a copy or repeatedly playing it can have a noticeable negative effect. Best of all, audio editing in the digital domain is non-destructive – no matter how much you cut, copy and paste, the original recording remains unaffected.

■ Professional studios like this are the natural home for direct-to-disk setups, but if you're really into music you could use the basics at home.

FALCON'S JUST... AMAZING

The Falcon excels in direct-to-disk recording thanks to its 56001 DSP chip which can handle digitised sound and effects processing. There are plenty of other reasons why the Falcon is the obvious choice for musicians. The most important is that it represents the most cost-effective way to fully integrate professional digital recording with professional MIDI sequencing.

Professional digital recording has always been very expensive, even when not integrated with sequencing. With the Falcon, though, it's possible to work with MIDI, acoustic instruments and vocals at the same time on a single computer at a lower cost than any other system offering the same. The Falcon is a very open machine, being fitted with just about every type of port that you can imagine. This also bodes very well for musicians, who in the next decade are likely to find themselves increasingly in demand to produce work for video, TV, games and various other kinds of interactive CD products. Music and sound are essential elements of multimedia, so what better computer to invest in than one that has been designed for multimedia production.

IN THE ST'S FOOTSTEPS

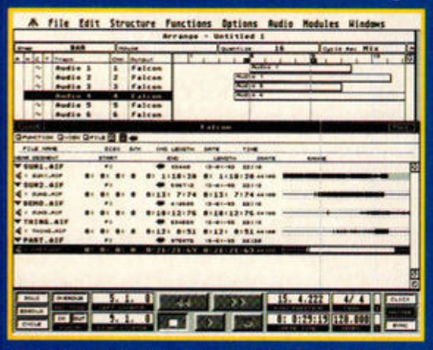
Last, but by no means least, a big plus for the Falcon is that it's an Atari. The ST made a very big splash in the music world in the '80s, leading to the evolution of a massive ST music software base. The ST is still the most widely used computer for music – despite the attention that other machines, such as the Mac and PC, have had. As

THE PROGRAMS YOU NEED

CUBASE AUDIO

£799 HARMAN AUDIO
☎ 081 207 5050

Well, this one really is the big daddy of them all – we reviewed it in detail last issue, so turn to page 62 to order your copy if you missed it. Up to eight tracks of direct-to-disk recording, completely integrated into what's widely regarded as the best MIDI sequencing system in the world. The waveform editor is very comprehensive, there's an effect section which includes a full screen eight channel EQ section, there's automated mixing, you can trigger RAM-based audio samples from a MIDI keyboard – the list of superb features just goes on and on. *Cubase Audio* is the software that shows the Falcon at its best, and vice versa. The price may not seem low at first, but it is.



■ Compared to other systems, *Cubase Audio* is a bargain. Get it if you have the cash.

***STF* RATING: 94%**

DIGITAPE 2

£499 FOR PROFESSIONAL VERSION; £140 FOR THE LITE VERSION
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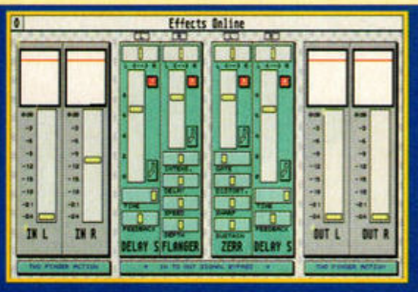
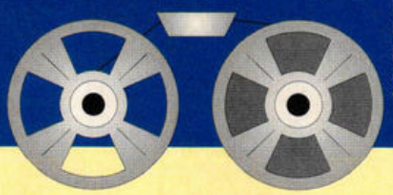
DigiTape is another German package. It is multi-track tapeless recording which, as the program's name suggests, uses tape as an analogy. It's a modular system – part of the screen is divided into spaces into which you place software versions of components of a recording studio. When you've built your studio, you can use it. Effects like echo, vibrato, distortion, and flanging are available, and you can use *DigiTape* to remove vocals from a track for home karaoke purposes. If you can live without the integration with MIDI, this is worth considering. It is practical and imaginative in design, and provides plenty of opportunity for experimentation.



■ However much money you have to spend and whatever you want to do, *Digitape* tries to cater for you.



***STF* RATING: 88%**

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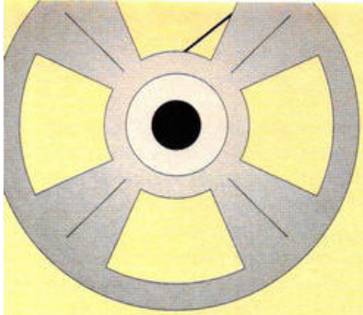
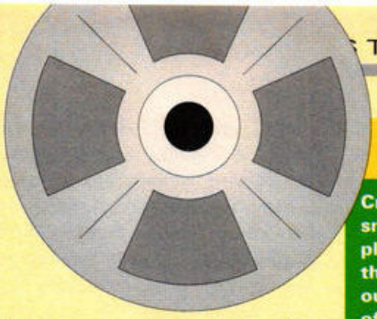




digital recording becomes more and more widespread, the Falcon will continue to replace the many STs currently sitting in homes and professional recording studios.

A high proportion of existing ST music software runs very well on the Falcon, and many packages that didn't perform perfectly at first have now been modified so that they do. All the major music software houses have embraced the Falcon unreservedly. One such company is Steinberg, whose *Cubase* sequencer is generally accepted as the leading sequencing package in the recording industry.

Cubase began its life on the ST, of course, but now it's also available for Mac and PC platforms. The top of the range, *Cubase Audio,* is the first fully integrated sequencing and direct-to-disk recording package for the Falcon – and it's going to take some beating. The Atari Falcon in conjunction with *Cubase Audio* is, for many musicians, a dream come true – a hardware and software combination made in heaven.

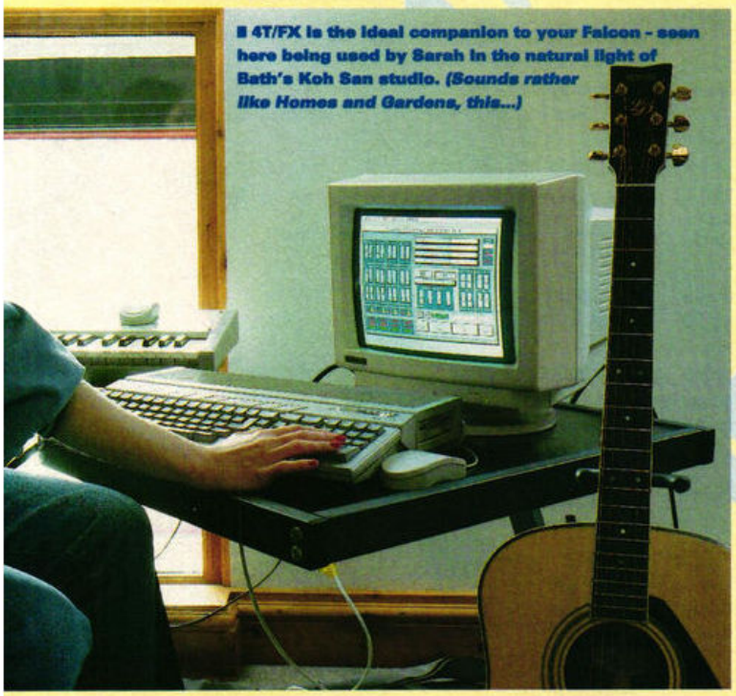
JARGON BUSTERS

Crossfade – A way of creating a smooth join between one sample and the next, by reducing the volume of the first (fading out) while increasing the volume of the second (fading in).

Cue List – A list of the sounds in the order in which they occur, with precise time values of when they should start.

Markers On The Fly – When editing a piece of digital audio, it's often necessary to determine a point at which to make a cut or an insertion. Such points are called markers. Creating markers by simply by hitting a key or clicking the mouse while the audio is playing is the quickest way to do this. If you like the idea of it, look out for software which boasts markers on the fly.

S/PDIF – One of the two standard digital audio formats. The other is AES/EBU.Wave, Waveform, Sample, Sound File, Audio Segment – In direct-to-disk recording, these terms more or less all mean the same thing, namely a chunk of recorded audio – either on disk or in RAM.



4T/FX is the ideal companion to your Falcon - seen here being used by Sarah in the natural light of Bath's Koh San studio. *(Sounds rather like Homes and Gardens, this...)*

ALL IT'S CRACKED UP TO BE?

It's unfortunate for the Falcon that its superiority in the digital recording field was interpreted in a slightly exaggerated form in the months leading up to its release.

> **"Many ST music packages that didn't perform perfectly at first have now been modified to do so"**

This was probably mostly as a result of a mixture of inaccurate rumour and unfortunate misunderstandings, but the natural result was that when the Falcon actually appeared, some over-optimistic musicians felt disappointed.

One commonly-heard whinge was that the Falcon's stereo audio inputs and outputs operated at microphone level instead of line level. Microphones send a weaker signal than most audio equipment, so there are problems with distortion if ordinary audio equipment is plugged straight into the Falcon without paying attention to volume levels. However, the problem can quite easily be solved.

One solution is to use an audio input cable with resistors fitted. Another is to buy a device such as Intrinsic Technology's MixIT – this is a small mixer with line level inputs and outputs. MixIt solves another problem – the Falcon's audio ports take mini-jacks, which are not considered by many to be professional audio connectors, whereas MixIt's inputs and outputs are quarter inch jacks. Other types of add-ons are available which connect to the DSP port to provide standard audio connections.

NOT INDUSTRY STANDARD

The Falcon's sampling frequencies do not match with those which

D2D EDIT

£150 D2D SYSTEMS
☎ 0223 420252

This is the first hard disk editing package that appeared for the Falcon. It is a stereo hard disk recording and editing package capable of taking advantage of the internal hard drive – so there really is no additional hardware needed here. Synchronisation facilities enable it to be used to play recorded digital audio in time with a sequencer.

You can cut, copy and paste to your heart's content, but there are no built-in effects. For that you need, from the same company...

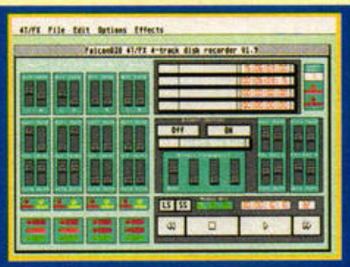
***STF* RATING: 82%**

4TFX (INCLUDES D2D)

£299 D2D SYSTEMS
☎ 0223 420252

4T/FX is a four track recording package available in a package with *D2D Edit*. Again, it enables you to use the internal Falcon hard drive – if you feel it's big enough for your needs. Its four tracks can be individually mixed, and effects may be added. Control it from sequencers such as *Cubase* and *Notator Logic*, and it also has synchronisation facilities. The digital audio tracks can be "bounced" – that is, two tracks can be merged into one to free an extra track for recording.

***STF* RATING: 87%**



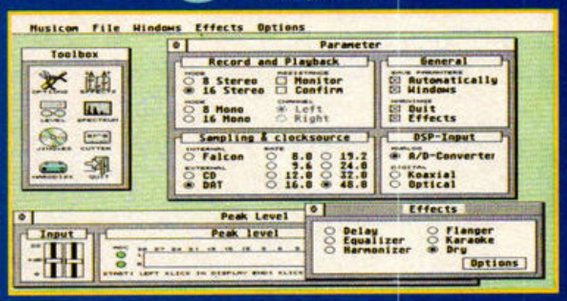
4T/FX and *D2D Edit* were among the first Falcon programs to appear.

MUSICOM 2

£79 COMPO ☎ 0487 3582

Offering stereo hard disk recording with digital effects for £49, *Musicom* was an early reminder (if anyone needed it), that the Atari Falcon was *the* machine for affordable direct-to-disk recording – mind you, all it could do was record, play back and add effects.

About to be released, *Musicom 2* looks like a very different program. It is a window-based package with full stereo sound editing facilities, a spectrum analyser, professional-style peak level meters and transport controls. An external clock for generating music industry standard sampling frequencies is coming out soon. This new *Musicom* looks handy for stereo recording. In keeping with tradition, it is not going to be expensive.



Musicom 2 continues in the same traditions as its predecessor but has plenty more bells and whistles.

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MIDI SEQUENCING AND D2D

Because computers such as the ST have become the main platform for professional sequencing applications, it has become acknowledged that direct-to-disk recording based around such computers would be more likely to achieve workable integration with MIDI sequencing than any dedicated direct-to-disk system. To a professional musician, a Falcon is an ST with digital audio, and represents an excellent chance for integration. But what are the advantages of integration? The biggest is that you can see MIDI information and audio information right next to each other on a single screen giving you the opportunity to visually correlate them. Integration also means bypassing the awkwardness of synchronising separate pieces of equipment.

Perhaps, though, best of all, it enables musicians to manipulate digital audio in much the same way that they have grown used to manipulating MIDI sequences, just by getting a software upgrade. Needless to say, the level of integration of direct-to-disk digital recording and MIDI sequencing offered by the *Cubase Audio* on the Falcon is unrivalled.

have been accepted as standard in the music industry. The Falcon's available sampling rates go up to 50kHz, but don't include the 44.1kHz of CDs and the 48kHz of DAT. It's not the end of the world, but it does mean that additional hardware is required to provide full compatibility with equipment that works at these frequencies. Such hardware is freely available, often packaged with the software, and usually in the form of a small plug-in card for the DSP port.

"The ST is still the most widely used computer for music – despite the attention that other machines have had"

For serious multi-channel digital recording work, a separate fast external hard drive is necessary. This is not because of any fault with the Falcon, but is simply because the Falcon's internal hard disk is just not fast enough or big enough. It is possible to use it with some packages, but only for short recordings (say about three or four minutes of four-track recording at 32.5kHz), and even then you wouldn't be able to use the drive for much else.

BARGAIN PRICE

Don't be misled – the Falcon can be used for direct-to-disk recording for next to nothing. But to use it for serious integrated MIDI sequencing and multi-channel direct-to-disk recording you would need to get the extras, which means that the total outlay (including everything – Falcon, monitor, *Cubase Audio*, a fast and spacious external hard drive, perhaps some extra RAM) would probably exceed £2,000. If this puts you off, remember that this is by far the cheapest eight-channel system, and offers an unrivalled level of integration with MIDI. A regular music industry publication called the *Tapeless Directory* has a section which lists all known multi-channel digital audio setups. Under ten per cent of the entries offer full integration with MIDI sequencing, and all of these require additional hardware. None can beat the price of a Falcon-based eight-channel system, with 75% of the entries costing over £20,000.

HARD DRIVE DECISIONS

The actual cost of a Falcon-based system depends mostly on how much you decide to spend on the hard drive. There's a degree of choice about size and speed, but for serious applications, big and fast is definitely best.

To record eight tracks at 44.1kHz (44,100 samples per second), you need over 40MBytes of space for each minute of music – and that's over 200 MBytes for a five minute song. But that's for eight tracks of continuous digital audio. In most songs there's actually likely to be less than eight tracks of audio going on for most of the time, so you should be able to get away with less disk space.

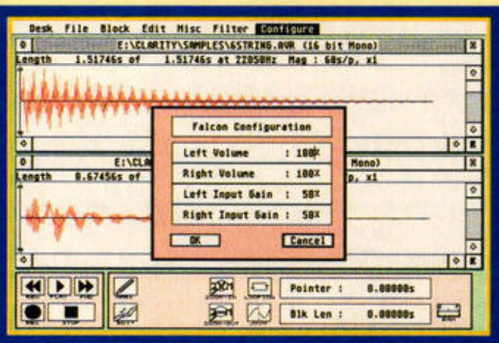
The Falcon's DSP (Digital Signal Processor) chip does much more than just enable direct-to-disk recording. It's also capable of producing stereo digital effects, including reverberation (the effect of space), digital delay (echo), and "phase effects" which include chorus and flange which can either enrich the sound or just make it sound weird.

Because the DSP chip has the capacity for these effects it isn't necessary to buy a dedicated effects unit in order to add some atmosphere to your recording. Most direct-to-disk recording packages available for the Falcon do offer a range of digital effects. ***stf***

CLARITY 16

£99.95 HISOFT
☎ 0525 718181

Developed by Audio Visual Research, *Clarity 16's* based on *Replay 16* for the ST – it's a sampling system with a sample sequencing facility. A 44.1/48kHz sampling clock is provided in the form of a plug-in module for the DSP port, and there's a lead which not only enables you to take sound directly from the phono outputs of a hi-fi, but which contains the built-in resistors needed to automatically attenuate line level signals to microphone level for the Falcon's audio input. Sample recording can be direct-to-disk or simply into RAM. Effects are provided. The included *Drumbeat* program provides simple sequencing – up to four samples can be played back at once out of a group of 30 for a song.



You want familiarity on your Falcon? Then *Clarity 16's* the program for you, following as it does in the footsteps of the popular *Replay 16*.

***STF* RATING: SEE NEXT MONTH**

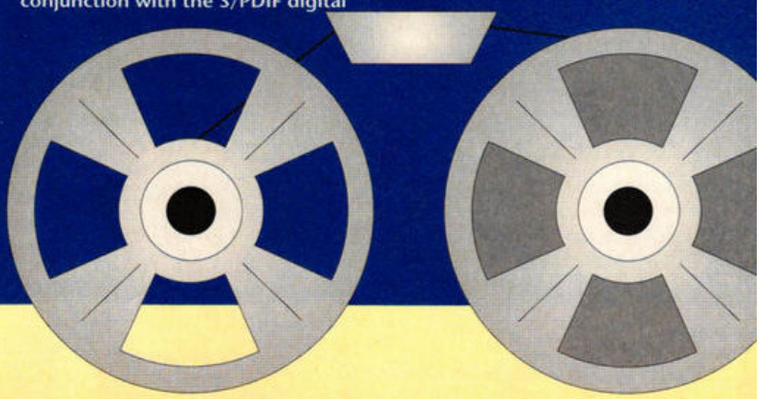
AUDIO MASTER

£225 OR £499 WITH S/PDIF DIGITAL INTERFACE
Q TEK UK ☎ 0382 200808

Audio Master is a two-track digital editor. The *Audio Master* manual recommends the use of special cable with 200 Kohm resistor for connection to the Falcon's input, to compensate for its microphone level rating, but such a cable is not included in the package.

However, when used in conjunction with the S/PDIF digital interface, sampling at industry standard rates of 44.1kHz and 48kHz is possible, via coaxial and, optical inputs and outputs. The manual is a fairly ungainly translation from German, but is easy enough to follow. *Audio Master* supports markers on the fly and MIDI timecode (MTC) synchronisation. Sound files are saved in standard .AVR format.

***STF* RATING: SEE FORTHCOMING REVIEW**



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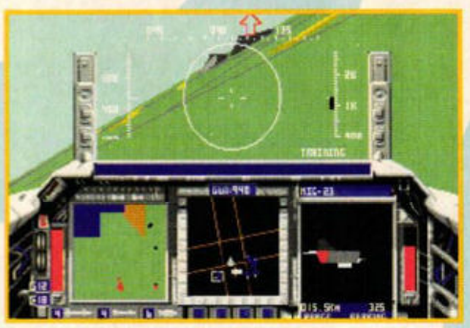
ST FORMAT APRIL 94

DREAM M

Let your ST take you as far as your fantasies permit... Andy Nuttall shows you the way

While sitting in a traffic jam or on a bus, have you ever thought how great it would be to sit in a powerful sports car and roar down carless motorways? To be free and not to have to worry about speed limits and crashing? That is surely the ultimate thrill for any driver, but in reality it can never happen, unless you're driving a Volvo down a German autobahn, of course.

What about flying? When you're sitting in an passenger aircraft you have no control over your destiny. Wouldn't it be great to be able to pilot the plane yourself, to fly wherever you want to go? We know what it can be like. The *ST FORMAT* team, constantly trolling back and forth between home and office, often wish we were elsewhere. Somewhere exciting, somewhere thrilling, somewhere... else. All right, so life on *ST FORMAT* isn't quite that sad, but you must know what we're talking about.



Sitting in the cockpit of an F-15 strike jet offers you real thrills; partly because it sticks you right in the action, flying above troops intent on your demise. However, you've got some pretty powerful armaments on your side.

Right – to the point. To get away from your everyday life needn't cost an arm or a leg down at Thomas Cook's, because you already have everything you need at your fingertips. Your ST! Well, what were you expecting?

Your ST is the key to a whole other dimension: a dimension not only of sight and of sound, but of mind. Virtual reality is a fashionable phrase, conjuring up images of people stumbling around wearing a black plastic headset waving a joystick. In fact, a virtual reality is simply another world which is entirely generated within your computer.

You can create any number of virtual realities using your ST, by loading up a simulation. Taking games simulations as an example, you can create and participate in Formula One racing, World War One dogfights, submarine battles, space shuttle missions, fantasy adventures – just about any situation you could imagine.

Here we're going to investigate every possible way in which you can leave the real world and join other virtual worlds created within your ST. Excited? Let's go...

The solid 3D chessboard marks *Starglider 2*, one of Argonaut's earlier games – but even four years on it's still a goody. Easy to fly, futuristic and fun.

Flight stimulation

After what is possibly the most clichéd heading for a piece about flight simulation, it's good to hear that there are stacks of such games available for your ST. The most abundant is the military variety, of course, because by their nature people like to shoot at things – while remaining in their armchairs.

Possibly the finest 3D shoot-'em-up involving aircraft ever is *Carrier Command*. Now available on the Kixx budget label, you're put in control of a fully-functioning aircraft carrier. Your naval abilities are put to the test steering the ship, along with piloting the aircraft on the carrier to bomb specific targets.

The F-series jets are allied, of course – but with *MIG-29* you can get a feel for life on the other side of the iron curtain. A game so real, you can almost feel the furry hat on your head.

THE ODDBALLS

These are all the squiddly games that just look out of place elsewhere. *Pirates* from MicroProse is a game which gives you the chance to "virtually" copy all your ST disks and give them to your friends. April Fool! No, really, the game's about a world filled with swashbucklers and sword-wielding stick-'em-up types, who float around the world in pirate ships and hold the fat cats to ransom. *Pirates* enables you to play one of these guys in an action-packed high seas adventure scenario.

Sherman M4, available on Action 16's Action Pack compilation, is the only tank simulation we could find – apart from *Tank Attack* and we can't remember who that's made by. So, we're left with *Sherman M4* which is about as exciting as driving down its namesake, but hell – what do you expect from a tank simulation?

No realistic 3D graphics, but a pirate simulator which makes you really feel like a swashbuckling 17th Century hero. Or a mutinous scab. One of the two.

Occasionally with sims, authors thought it a good idea to put simulated hands under the game, which move depending on your movements.

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ACHINE

Talking of bombing targets, MicroProse are the specialists at creating simulations of air strikes. The first of the three we're going to cover is *F-19 Stealth Fighter*, a simulation of American military intelligence's flying kipper. Some may find this a classic flight sim, fairly easy to play but lots to do. Others might say that the whole point of the stealth fighter is that the enemy can't see it, so getting yourself into battle situations can be difficult.

With *F-15 Strike Eagle 2*, however, that's not a problem. The F-15 is much easier to fly than the F-19, but those blasted enemies simply refuse to stop shooting you down. You're given lots of armaments, including the infamous Fire and Forget missiles, so you should be hard enough to handle it. *B-17 Flying Fortress* simulates a heavy and plodding aircraft, the B-17 Flying Fortress – they really have a knack with names, don't they? The reason it's so heavy is because it's loaded with every missile the USAF could think of, and some others. You might remember the good old B-17 from the film *Memphis Belle* – well, now you can fly it yourself.

"Playing a half-robot and half-human hybrid can be fun, especially when blowing away wrong-doers"

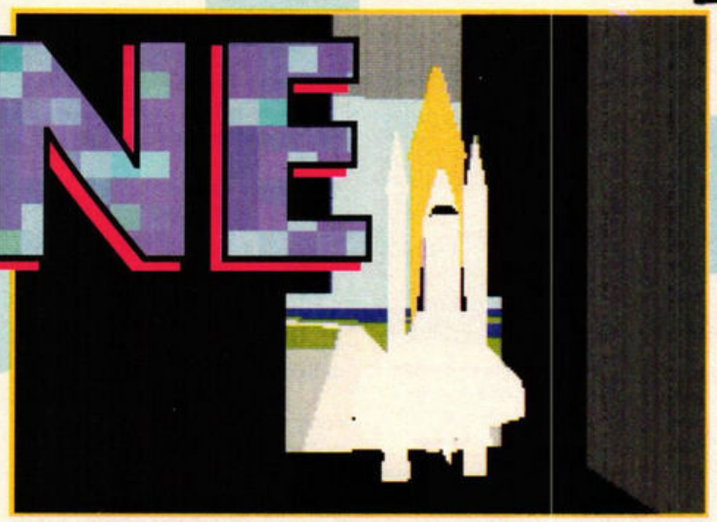
Budget fighting flight sims abound, not least with the excellent *MiG-29* from The Hit Squad. This follows the well-known Soviet fighter almost down to the last dial, and still manages to be fairly easy to control. It's accurate, it's fast, and it plays like a dream. Also in the battle genre, but on a slightly different tack, *Gunship* from Kixx puts you in charge of an Apache Gunship helicopter. Although the graphics are fairly crude, the gameplay is believable and it's one hell of a blast. Only £12.99, too.

To complete the fighting section *Dogfight* from MicroProse deserves an honorary mention. It's the first game to pitch aircraft from different decades against each other – so you can fly a Spitfire and fight against an F-1117A Stealth Fighter. Excellent.

If military manoeuvres and violence aren't your cup of milky, then perhaps you might fare better with something like *A320 Airbus* from Thalion. No combat, just lots and lots of training in the "simulator within a simulator," and then venturing out into the semi real world of piloting a passenger aircraft. The graphics are a little dull, but it's got an accurate map of European airports. Technically superior, but for real tech-heads only, *ProFlight* from Hisoft is a real challenge. This is the most accurate attempt at an aircraft simulation ever, apparently, which is why pilots use it to fly when they're on the ground.

Do you find flying around the world a little boring? Would you like to expand your horizons a little, and zoom off into outer space? *Shuttle* from Virgin is a valiant attempt at simulating a few years in the life of a space shuttle. Seven missions are yours, unfortunately all resting on your ability to not only get the Shuttle up into space, but also returning and landing the blasted thing. If you can do that, this could be a great game.

Once you're up in space, if you don't want to return you could try out *Starglider 2* from Kixx. Written by Argonaut, the people behind the SNES hit *Starwing*, this is a flight simulation set on a distant planet. There are no technicalities to deal with – just fly and go, as it were – and the feeling of "being there" is second to none.



Shuttle is one of the most realistic sims ever. To roll the shuttle out from the hangar into the launch bay takes seven hours - real-time! There is a time-skip facility, though, if you're not bothered about detail.

Whereas *F-19*, of course, gives you the thrill of flying, but the enemy's radar won't pick you up - so you can generally fly around unnoticed. One for wimps, really.

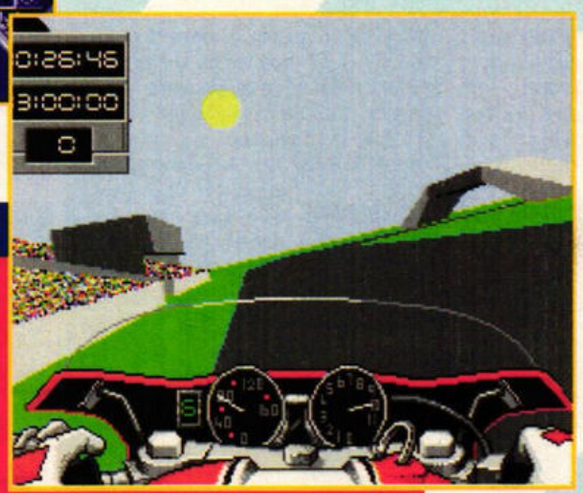
Cars, cars, cars

The more down-to-earth ST owner, especially if you're too young to have taken your driving test, might like to try a driving game. While not all of these can strictly be called "simulations," we've picked

So! consider *Battle Command* from Ocean. This is a tank simulator par excellence, in which you control a particularly nasty hunk of metal suitably called the Mauler. 12 missions must be completed, giving you a long task ahead, and it's all represented in full, living 3D polygons. Oh, and it's the sequel to *Carrier Command*.

And finally, we move to motorbikes. Any self-respecting games collection must have a motorbike game in it somewhere. *Team Suzuki* by Gremlin Graphics is a fast but simple 3D racing game, which accurately depicts a bike race – as you turn the corners you bank, and so on.

It's not stupendous, but if you're bored with all the other simulated worlds you've come across, you could do worse than a bit of motorbikin'.



Team Suzuki plays almost like a flight sim, but you're stuck to the racetrack. Accelerate, bank left or right, roll - you're given full control of a high-powered motorbike.

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F1 manages to simulate a Formula One season without going into too much detail - the controls are simple, and the speed is intense.

out a few that certainly give the impression of speed, and the wind blowing through your hair. You know what we mean.

First up is *Formula One Grand Prix* from MicroProse. You would never believe this game from a description – you have to see it. Just take a look at the screenshot at the top of this page, and imagine it moving smoothly and quickly. The detail is simply outstanding, making it one of the best games ever made for the ST.

F1GP was written by Geoff Crammond. Beforehand, Geoff was responsible for *Revs* on the BBC Micro, and then *Stunt Car Racer* on the ST, released on MicroProse's budget label MicroStyle. Although it has relatively simple graphics, you get a definite feeling of bouncing a stunt car around a spiralling track – so it works. And you can link up two STs and play against your friend. *F1* from Domark is more of an arcade game. Technically it's not as clever as *F1GP*, but it's incredibly fast. Hold the fire button down, then steer left and right – that's all you need to do for your thrills.

"The spoof *Sim Pig* gives you a farm full of pigs to handle - a feat not to be trivialised, we can tell you"

Adventureland

"What's this?" you ask. "Adventures aren't simulations." Well, strictly no, they're not. But, they do create a virtual world which you can visit when you switch on your ST, and so they fit within the scope of this article.

Years ago, the nearest you could get to creating another world with your computer was using text. Text adventures played almost as though you were reading a book, but you could interact with it. The best examples of the text adventure came from Infocom, with titles like *Hitch Hiker's Guide to the Galaxy* and *Zork*, later released on budget through Virgin Mastertronic. If you spot either of these games, take a look at them.

They were great games, but they were quickly superseded by other adventures which made use of the ST's graphic potential. *The Secret of Monkey Island* from LucasArts, released on budget through Kixx XL, is regarded by most as the best adventure ever for the ST. Its combination of wit and flawless gameplay makes this pirating adventure one to watch out for.

One of the strangest examples of the graphics adventure came with the Shareware release of *Grandad: The Quest for the Holey Vest*. Grandad is old, and therefore this could be described as an old-age simulator – but mostly it's just an adventure in which you can wheelchair yourself around, and generally get under people's feet.

Simulations don't always have to be boring recreations of planes and cars - you can get some which see a funnier side. Take Grandad, for instance - he's an old codger in a wheelchair, so you know exactly what to avoid when you get to his age.

Guybrush Threepwood's your name, and pirating is your game. At least, in your dreams - Guybrush, the star of *Monkey Island*, is a 15 year old kid, really, with ideas above his station. A bit like a modern day Famous Five.

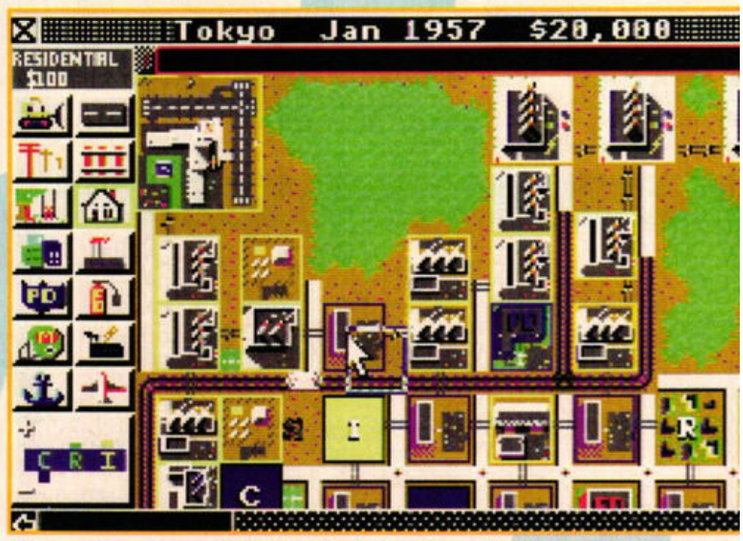
Into the real world of adventures, for want of a better expression, we have lots of 3D games which throw you directly into another world. Possibly the first to come along was *Elite* from the now defunct Firebird, a space trading adventure with simple 3D graphics but an astonishing game size. For the first time you could really get out into space, and live a believably real life until you pluck your eyes away from the screen and back to the real world. *Elite* "out of body experiences" have been known to last for many days, but not by anybody from *ST FORMAT*. Oh no, not us.

If you can't find *Elite*, you should be able to get its sequel, *Frontier*, recently released from Gametek. Employing solid and complex graphics, the actual gameplay is similar to *Elite*, but the play area is much bigger.

To create your own virtual realities, you could buy Domark's *3D Construction Kit 2*. Using solid 3D graphics, entire worlds can be built up from scratch – and you don't need to mess around with code to do it. Lots of PD games have been released which use *3DCK*, including *Endurance* (see the review this month's Public Sector on page 32).

Cybercon 3 from Kixx XL is a first-person 3D game, where a computer has wiped out the

This particular scene from *Midwinter* is a skiing simulation, hence the goggles. This isn't St Moritz, though - it's a nuclear winter, and survival is the name of the game.



You can't see the people in *Sim City*, but you know they're there. They make their presence known by informing the local newspapers of your progress as mayor - and you know what tabloids can be like.

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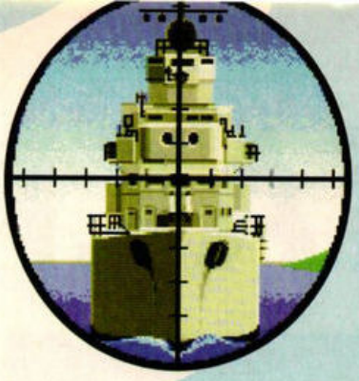


majority of the human race. You must destroy it, and it sends out all manner of droids and nasty things to stop you – all in complex 3D. Compelling stuff. Based around a similar game engine, *Robocop 3* from The Hit Squad is a blast. Playing a half-robot and half-human hybrid can be fun, especially when blowing away wrong-doers and ne'er-do-wells in realistic 3D. RPGs are pretty in vogue, and they are no longer the domain of propeller-headed people sitting in darkened rooms and twirling dice. No, they're quite accessible by anybody, but perhaps the easiest to get to grips with is *Midwinter* from Rainbird. An excellent game, receiving the highest ever rating in *ST FORMAT* of 96% back in issue 9, *Midwinter* is a survival RPG where you have to group together with other survivors of a nuclear winter.

Its sequel *Midwinter 2* must be due for a budget release at any time, so watch out for that.

God squad

We thought it would be best to leave it until near the end of this feature before turning to God, just in case it put any of you off and made you turn over (no offence, God fans). Anyway, the idea with god-games is that you play god. That's mostly god with a small "g" because you're generally not in charge of earth as such, but a piece of land on some planet or other.

"For the first time you could really get out into space, and live a believably real life"

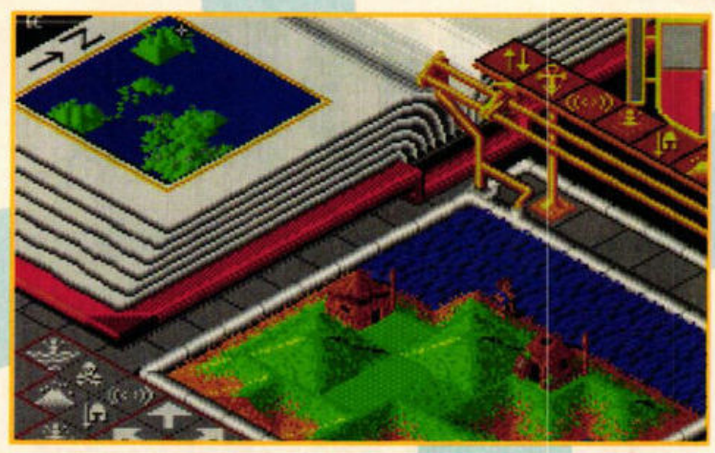
Civilization from MicroProse and *Populous* from Bullfrog and Electronic Arts are generally regarded to be the best god games to be released so far. Although similar, the two are subtly different.

Civilization gives you control over a large nation of people, who must begin at the very beginning, inventing the wheel and fire and all that. Survive all the nasty things nature and neighbouring countries send at you, and rise to glory and civilisation (hence the name) is imminent. *Populous* is similar, except that you're playing against other gods, who would most likely sell their granny as send a tidal wave or earthquake at your people.

Bullfrog and Electronic Arts' *Powermonger* goes one step further again. You're the ruler of a battle-hungry race of people, whose objective is to fight and conquer as many other nations on the planet as possible. Sounds bloody? Yes, it is – but it's an incredible involving game.

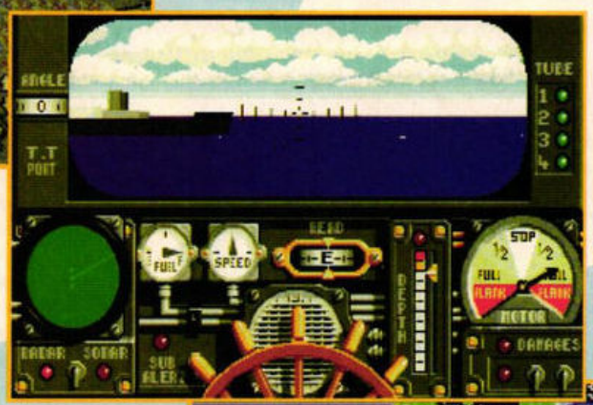
On a slightly smaller scale, *Sim City* from Infogrames enables you to build an entire city as you would like it. There's no risk of war from neighbouring cities, simply a test of your management skills at developing and running your own little metropolis. The spoof *Sim Pig* from Aquila PD library gives you a farm full of pigs to handle – a feat not to be trivialised, we can tell you. Buy land and some piglets, buy food, then watch them grow into large pigs and sell them for a large profit.

Gremlin's *Utopia* is a cross between *Sim City* and *Populous*, set on a distant planet. Not only do you have to keep your race of people safe from marauding aliens and natural disasters, but you also have to colonise the planet and use its resources to their best effect. **stf**

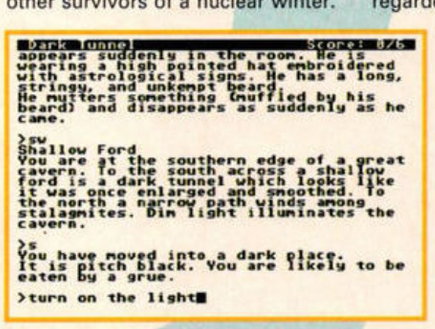


There's no greater feeling than seeing your little *Populous* men living in the town you built. Although the graphics are tiny, you can tell when they're angry or happy – quite an amazing experience.

From the stable of *Populous* came *Powermonger*, a game in which you could tell the thoughts of your men. Angry, all of them. All the time.



Futura's *Advanced Destroyer Simulator's* a blast, if you can get hold of it. A full simulation of a floating battleship can be yours – realistic to a fault.



Years ago, this is how adventurers left the real world. No graphics, no sound – just the text on the screen, and the thoughts and images in your mind. Try one sometime.

Civilization gives you what many people dream of: the chance to rule over a nation. If you fancy yourself as the next John Major, here's your chance.

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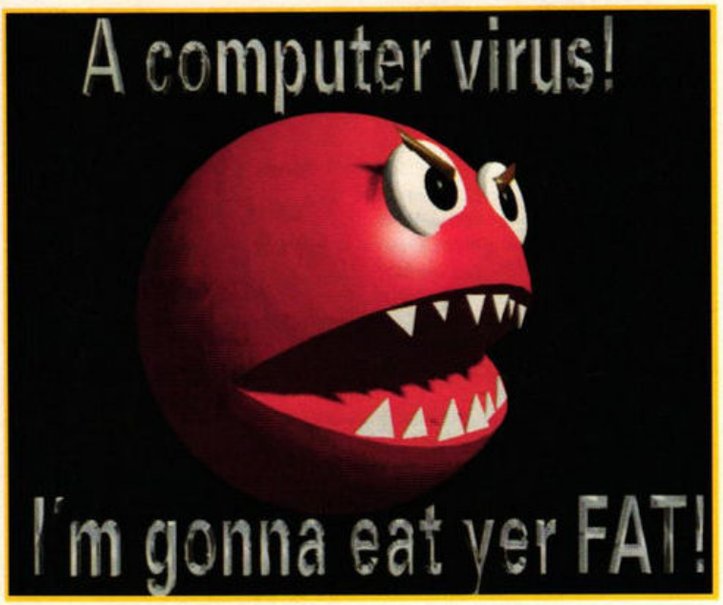
UNDER ATTACK

Some people have nothing better to do than spoil things for everyone else by writing stupid viruses, Clive Parker assesses the potential threat



Er, no, actually, viruses don't look like this. This is more like Pacman. Learn something new with *STF*.

You try to play your favourite game and nothing happens; the boot disk has been trashed by a virus and your game is ruined, so that's £25 down the drain and there's nothing you can do about it. But you could have taken a few simple steps to minimise the damage that's caused to your precious disk collection. Walk this way...

What is a virus?

A virus is nothing more than a small program with certain capabilities which may be harmful to floppy disks – especially if the disks have special auto-loading bootsectors which enable the main program to run. This includes most of the commercial games that are available for the ST.

Because a virus is a program, it can only be passed from disk to disk by being loaded into the memory of your ST and then being saved to another disk. It's not a biological virus – like the cold or AIDS virus – and it can't leap from disk to disk just by putting them in the same disk box together. Even keeping your disks in separate plastic bags isn't going to help matters if you've saved the offending program to a disk. Like all programs that load into your ST, the virus vanishes when you switch off your machine – it doesn't lurk inside your ST waiting to pounce the next time you switch on.

Some viruses can, however, survive a reset – that is, if you press the small button on the back of your ST. To ensure that a virus is cleared from your ST's memory, you have to switch off the power for at least 30 seconds.

Types of virus

There are two types of virus that can infect a disk, these are called bootsector viruses and link viruses.

A bootsector virus is a tiny program that hides in the very first sector of a floppy disk. When you boot up your ST with a disk in the drive it looks in the bootsector to see if there is a program there. If there is, the program runs before anything else happens. Commercial games tend to use this type of bootsector when you run their protected software.

Bootsector viruses

A bootsector virus uses this feature of your ST to run and copy itself into memory. It doesn't do anything; you don't know that it's even there. When you swap disks to run another program without resetting your ST, the virus accesses the disk and copies itself to the bootsector, this deletes any information that was already contained there. This

ANTI-VIRUSES

An anti-virus is a program that works in exactly the same way as a destructive virus, that is, it is loaded from the bootsector of a disk into memory and saves itself to other disks.

The difference is that an anti-virus "stands guard" over your system and lets you know if any disk you put in the drive contains executable code in the bootsector, a sure sign of a virus. There are over 40 different anti-virus programs around for the ST.

Many anti-viruses cannot distinguish between different types of bootsector code, so they just yell at you and tell you that something is in the bootsector of the disk. It's up to you to decide what to do about it.

Be careful, it's very easy to think that your game disks are infected. Never use a virus killer on a commercial game disk.

HERE ARE A FEW OF THE MOST COMMON BOOTSECTOR VIRUSES

These are the most common and troublesome types of virus on the ST

5TH GENERATION VIRUS: Overwrites the first 34 sectors of a disk after copying itself five times.

ACA VIRUS: Clears track 0 of disks after it has made ten copies of itself; this virus is reset-proof.

ANTI-ACA VIRUS: Prints a message on-screen then crashes the system after copying itself four times.

ARNOLD/RAMBO VIRUS: Copies itself to disks but does nothing else.

ASHTON NIRVANA VIRUS: Writes the word "ASHTON" in random sectors on a disk corrupting any data within those sectors. This happens each time a floppy or hard disk is read from or written to. Reset-proof, it cannot copy itself to hard drives but can corrupt them.

BAT VIRUS: After copies are made the last sectors of a long directory are deleted, after an hour the mouse pointer turns into the Batman logo. Reset-proof.

CHOPIN VIRUS: Plays the *Death March* and freezes your ST with an obscene message after 26 copies.

COOKIE MONSTER VIRUS A: After it has copied itself 30 times it freezes your system and then prints "You know what? I want a cookie!" on-screen. If you type "COOKIE" you can continue with whatever you're doing until it copies itself another 20 times, then the message appears again.

COUNTER VIRUS: Just copies itself to disks and counts how many times it has been copied.

CT VIRUS: Deletes file allocation tables (FATs) of floppy and hard drives if the system date stamp is 1987. Reset-proof, this virus has the ability to copy itself to hard drives.

DARKNESS VIRUS: Writes garbage to the first nine sectors of a random track after eight copies are made, the screen may also blank out. Reset-proof.

DIRECTORY WASTER VIRUS: Destroys the first 20 tracks of a disk after 20 copies. Reset proof.

DJA VIRUS: Prints a Danish message on-screen and locks up the system after detecting itself on four disks. Can copy itself to hard drive.

EVIL VIRUS: Reset-proof virus that inverts the screen colours after it has copied itself 100 times. Disguises itself as an Atari System disk.

EXCEPTION VIRUS: Crashes your system by writing random data to memory 22 minutes after accessing a write-enabled disk. Reset-proof.

FINLAND VIRUS: Alters the screen colours after making 12 copies then copies itself to non-executable

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is how commercial games are destroyed – the virus has the effect of erasing the code that enables you to start the game.

Most viruses keep a record of how many times they have copied themselves. When a certain number of copies has been reached they activate their destruction routines. This can include crashing your ST, erasing the tracks on a floppy disk that contain the FATs and directory information or just printing a message on-screen. All virus routines are at least annoying and at most troublesome.

"Be thankful you don't have a PC compatible, almost every day of the year has a virus assigned to it"

A link virus is a different type of program. Instead of hiding in the bootsector of a floppy disk it attaches its code to another program and hides there disguised as one of your normal program files. The only way you can detect if a program has a link virus attached to it without using a special virus killer, is to memorise the length of each of your programs and utilities. Not an easy task.

Bootsector viruses are by far the most common on the ST with over 70 known so far, where there are only five known link viruses.

Be thankful you don't have a PC compatible, almost every day of the year has a virus assigned to it that can be triggered by reading the date from the system. At the last count there were only about ten dates left without viruses assigned to them.

Virus killers

A virus killer is a program designed to look at the bootsector of a disk to see if there is any executable code hidden there. If there is something there then you can use a virus killer program to erase it and leave the area clear – this is often called immunisation to fall in line with the biological parallel.

There is one major commercial virus killer available; *UVK* is the most comprehensive program of its kind and can recognise almost 1,500 different bootsectors and can repair over 700 commercial games disks damaged by viruses.

There are also many Shareware and PD virus killers around, but they are not as sophisticated as *UVK* and lack many of its features and functions.

Perhaps the most powerful Shareware virus killer is called *Sagrotan* and comes from Germany, but there are many others to choose from. Almost every PD library has a large collection of virus killers available, check our library on page 34 for details.

The latest threat

The latest and most dangerous boot sector virus to be found on the ST is the Beilstein Virus. This new virus was first detected in the middle of 1993 and disguises itself as a PC disk, technically it's called a "third generation MS-DOS mimic virus." When a virus killer program looks at the Beilstein Virus it thinks that it is looking at a disk formatted on an ST with TOS 1.4, 1.6, 1.62, 2.05, 2.06 or on a PC.

The virus also hides in other ways; it alters its own code so that it looks different every time a virus killer looks at it. In fact, it can show up in 650,000 versions. Perhaps the sneakiest, most dishonest thing the Beilstein virus does is to retain the original boot sector of the floppy disk, so if you had an anti-virus installed on a disk that the Beilstein Virus has infected, you still get the all-clear message when the disk is booted up!

When activated, the Beilstein virus can use one of 12 different destruction routines including wiping partition C of a hard drive, deleting files after you load them, corrupting the screen, resetting your ST and garbling printer output. At present only versions of *UVK* above and including v5.9 can detect the virus. **stf**

LINK VIRUSES

Crash Virus: Reset-proof, memory resident virus that infects all programs loaded. Doesn't have any other harmful effects.

Milzbrand Virus: Clears track 0 of floppy disks when the system date is set to 1987, destroying all FAT and directory information. There are many versions of this virus because it was originally a type-in listing in a German magazine. Doesn't remain in memory.

Papa and Garfield Virus: Reset-proof, memory resident virus that infects every program loaded into memory. Leaves a flashing pixel on-screen, beeps and prints "Garfield & Papa was here." Only works on STs with more than 1MByte of memory.

Uluru Virus: A memory resident program that infects every program loaded over 10,000 bytes in size. Writes text files on disks containing the message "Mad `0Zimmerman will be watching you."

Virus Construction Set Part 2: Various symptoms, the most common being "You have ten seconds to prevent a reset." Written using a German program called the *Virus Construction Set Part 2*. Doesn't remain in memory.

FOLLOW THE VIRUS SAFETY CODE

1. Keep disks write-protected 'till you need to save data.
2. Buy the *Ultimate Virus Killer v6*, it's only £9.95 and well worth it. See page 92.
3. If you can't afford *UVK* then get a PD virus killer.
4. Check disks from your friends. You never know what's on them, even your mates can have an odd sense of humour.
5. Don't get complacent if you always boot from your hard drive. Some viruses can get onto hard drives.
6. Never permit yourself think "it'll never happen to me" because that's just asking for trouble. And you know where that can lead you.
7. Never use a virus killer on a commercial game, you can destroy the game.
8. It's not just hard drive owners who need backups – make sure you back up those floppy disks.
9. If you don't have a commercial or PD backup program use BACK_UP.TOS on the Cover Disk.
10. Never use a virus killer that automatically erases bootsectors – you could accidentally destroy vital software.

YOU'RE LIKELY TO COME ACROSS ON YOUR ST

disks, disks infected with viruses and disks protected by the PD virus killer *Sagrotan*. Reset-proof.

FLYING CHIMP VIRUS: Prints "Zapped by Waldo the Flying Chimp" on-screen after copying itself five times or after 20 bootsector accesses.

FREEZE VIRUS: Your ST gets slower and slower until it freezes as soon as the virus is in memory.

G-DATA VIRUS: Copies itself to disks.

GAUWEILER VIRUS: Prints "AIDS?" on the screen and erases track one of a floppy disk, wiping the bootsector, FATs and directory when you reset after booting with the infected disk. Reset-proof.

GHOST VIRUSES A TO I: Variations on the theme of causing the vertical movements of the mouse to be reversed after it has copied itself. Reset-proof and very annoying.

GOBLIN VIRUS: Prints "The Green Goblins Strike Again" after it has copied itself to 128 disks, causes screen corruption after 16 copies. Reset-proof.

GRIM REAPER VIRUS: After 47 copies the screen is corrupted and the screen memory are written to the first 20 sectors of a disk deleting all data.

HELP VIRUS: Fills screen with bombs when booting.

HORROR VIRUS: Messes up the screen colours and makes silly noises after copying itself five times. Reset-proof.

JOE VIRUS: Clutters up the system when it finds specific values in certain bytes, it does this when it finds itself on a disk and every second time after that.

KOBOLD #2 VIRUS: Distorts horizontal mouse movement as you move your mouse right. Reset-proof, does not damage disk data.

LAB VIRUS: Blanks the screen after copying itself ten times, does not work on TOS versions above 1.04.

LIETUVA VIRUS: After eight copies have been made, it zeroes the bootsector of the next disk, this then happens every six copies afterwards. Reset-proof.

MACUMBA 3.3 VIRUS: Freezes the system without warning after copying itself to several disks and disguises itself as an MS-DOS disk. Reset-proof.

MAD VIRUSES A TO C: Variations on the theme of altering the screen display and causes beeps after it has copied itself five times.

MAULWURF I VIRUS B: Prints a message on-screen then locks up the ST, this virus is reset-proof.

MEDIA CHANGE VIRUS: Turns the text the same colour as the background after every fifth copy; reset-proof and can copy itself to hard drive.

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ULTIMATE VIRUS KILLER V6

If you really want to protect your ST from the threat of viruses then you need the latest version of the *Ultimate Virus Killer*, it's the best version yet.

Up to now all versions of *UVK* have used the same interface designed back in 1988, it was really looking rather dated. A redesign and use of keyboard shortcuts makes the new version much easier to use and less daunting if you're an enthusiastic novice on a wild virus killing spree.

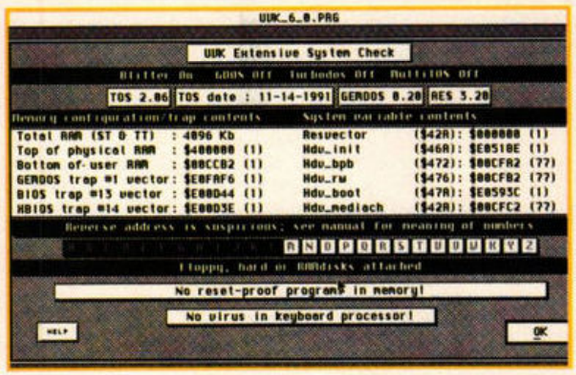
That said, the basic mechanics of *UVK* remain the same as they always have been; the best virus killer around and the only one that enables you to repair a large number of different games and programs ravaged by virus attack or by unskilled use of a lesser virus killer.

So what's new?

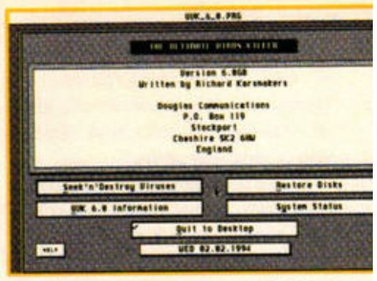
Not much on the virus killing and detection side of things, *UVK* can identify and immunize more viruses than any other program, it can repair over 700 commercial titles and can identify over 1,500 bootsectors.

Apart from the complete redesign, *UVK* now works as a Desk Accessory – just change the file extender from .PRG to .ACC and stick it in the root directory of your boot disk. There's no printed manual supplied but a huge text file on disk makes up for this, and another large file containing current details of all known bootsector, link and anti-virus around. Finally, *UVK* is the only virus killer that can detect the new Beilstein virus, potentially the most dangerous ST virus yet. Just check out the exclusive *UVK* demo on this month's Cover Disk to see what we mean. ***stf***

"*UVK* is the only virus killer that can detect Beilstein virus, the most dangerous ST virus"



When you run *UVK* you are presented with a huge mass of facts and figures about your system.



UVK's main display, simply laid out and easy to use. Printing "Don't Panic" on-screen is not an option that's been included but would have been a relaxing touch.

UVK v6

£9.95 ST FORMAT mail order see page 92

Highs
- Most comprehensive bootsector virus killer.
- Knows all about link viruses.
- Updated every three months.
- Inexpensive.

Lows
- Easy to delete some unrecognised games software.

92

Checking disks – click on search 'n' destroy to start then follow steps one to three

1 Check the disk in drive A to see if it has a virus; you never know what may be lurking on a disk.

2 Oh dear, there's something on the bootsector that may be nasty. Better take a look at it to see what's there.

3 Sigh of relief! It's the *ST FORMAT* Cover Disk 57 with a special executable bootsector to fool us.

EVEN MORE OF THOSE NASTY BOOTSECTOR VIRUSES

MEGAGURU AND ARGO 2 VIRUS: Prints an Italian message on-screen, inverts the screen colours and bleeps whenever an executable disk is detected.

MENACE VIRUS: Writes a message in the Elfish language in the bootsector of a disk after making ten copies of itself. The Elfish language was created by JRR Tolkein, author of the classics *The Hobbit* and *Lord of the Rings*.

MERLIN'S MAD VIRUS: Harmless virus that can't copy itself; it corrupts the screen and beeps.

MONITOR VIRUS: Prints random lines on-screen.

MUTANT ANTIVIRUSES #1 A AND B: Copies to disks unless they are executable, causes system crashes.

OLI VIRUS: Prints "OLI Virus installed" on-screen and then slows down your ST after making 20 copies of itself. Reset-proof.

PMS VIRUS: Prints "*** The Pirate Trap ***, * Youre being watched *, ***(C) P.M.S. 1987 ***" on-screen every 50 times it's copied. Reset proof and written by someone who doesn't understand apostrophes.

PUKE VIRUSES A AND B: After copying itself five times it deletes the first file on the disk in the drive. Puke B erases the first file every second copy.

RESET VIRUS: Prints "Ihr Rechner hat Aids" on-screen three hours after booting.

SIGNUM/BPL VIRUS A AND B: Copy to disks.

TEMPORARY MADNESS VIRUS: Inverts mouse movement for ten seconds every 22 minutes. Reset-proof.

TOI VIRUS: Modified version of the Ghost Virus inverts the mouse pointer after copying itself to five disks. Reset-proof and also alters memory locations so that software acts in an odd way or crashes.

UPSIDE DOWN VIRUS: Turns the screen upside-down after copying itself four times and then after every second copy.

WOLF VIRUS: Makes your ST think it has only half the RAM it actually does have after finding an eighth generation copy of itself and halves it again the next time it is found. Disguises itself as an MS-DOS disk and prints a "Kein Virus im bootsector!" on-screen, the same message the *Sagrotan* virus killer installs on its protected disks.

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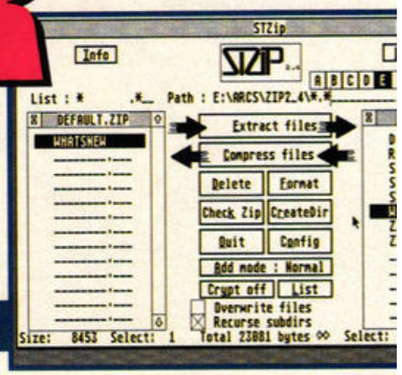
PUBLIC SECTOR

Don't worry if you can't buy the program you want. There's always something interesting and free in PD, so let's take a look at what's around



■ It gets better with every update, *ST Zip* is undoubtedly the best file compression utility for the ST.

UTILITIES

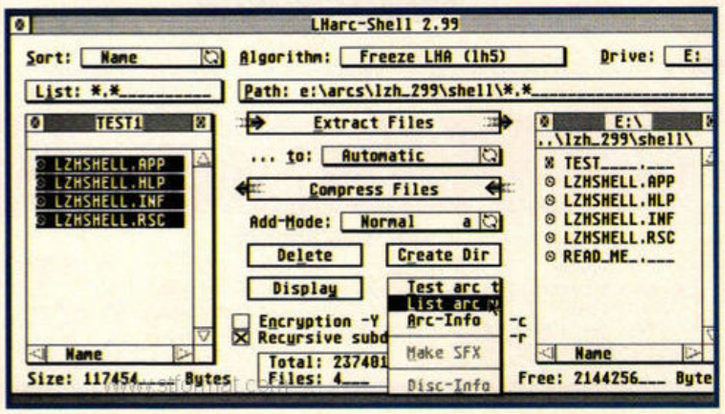
ST ZIP 2.4

GOODMAN INTERNATIONAL
DISK GD2173

ST Zip's back with loads of extras and bug-fixes in this new version, including the ability to display picture files if a suitable viewer program is installed as a Desk Accessory. This means that when you double-click on a file in a zipped archive, you can display picture files as well as text and program files. *ST Zip* calls the viewer program (*GemView* or *ShowView*) and asks you if you want to display the picture.

ST Zip is now fully MiNT and MultiTOS compatible so it should work with the Falcon without any problems, other tweaks made to the program make it a lot easier to use than the previous versions. *ST Zip* just keeps getting better.

***STF* RATING 90%**



■ It's *ST Zip!* Er, no it isn't. It's the shell program for *LHarc* that looks rather like its *Zip*-based cousin.

LHARC SHELL 2.99

GOODMAN INTERNATIONAL
DISK GD2173

The latest – and best – version of the *LHarc* file compression utility comes complete with an up to date GEM shell rather like the one used with *ST Zip*. The program itself is simple to use with standard GEM windows and buttons for all functions. An on-line help facility is included but all this actually does is read any text file called LZHSHELL.HLP placed in the current directory of the program, in effect it just displays the document file supplied. Compression rates are very efficient with the choice of six versions of *LHarc* to choose from.

The comprehensive manuals tell you everything you need to know about the major versions of *LHarc*, but don't actually tell you how to use the shell program itself. A bit of common sense and trial and error enables you to find your way around the program, it's worth working at it.

***STF* RATING 85%**

OPTRONIX MUZAK PLAYER

LAPD DISK S145

You can play music written by most of the major demo crews using the *Optronix Muzak Player*, including *Mad Max, Count Zero, Tao, Big Alec* and *Megatizer*. Don't worry if you've never heard of these names, most of us haven't and most of us don't really want to. *Optronix* enables all of these music files to be played and also enables you to hack into game files and "rip" out the music yourself, the music can be saved as a binary file for use in your own programs or played using *Optronix*.

The program is competently written in *STOS* and the main menu consists of options displayed in large friendly letters making it easy to use. If you like demo coder's music then this program is great, but if you don't like it then don't bother. Still, it's a good way to nick music to use in your *STOS* games.

***STF* RATING 72%**

WHAT'S WHAT IN THE PD

It can be a bit confusing trying to work out what the differences are between the programs in the PD. Here's our handy guide

Freeware
Any program which may be distributed freely within the Public Domain, with no profit made from sales is known as Freeware.

Licenceware
A kind of budget range of commercial software which costs a bit more than ordinary PD because a royalty is paid to the programmer.

Public Domain
Programs where the programmer has let go of all copyright so you can use, copy and distribute them at will as long as it's not for profit.

Shareware
The copyright remains with the author but the programs can be distributed freely. If you like and use the program, you're asked for a nominal fee to register the software.

■ A player program for demo coder tunes, huh? Frankly, all the tunes in demos sound the same to us, crap. (*Not to me - Nutts*).

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GAMES

DAVE MUNSIE GAME COLLECTION VOLUME 1

GOODMANS INTERNATIONAL DISK GD2170

Nine excellent games could be yours by simply sending off for this one disk. Do it, and you won't be sorry - this is one of the best Public Domain offerings ever.

Wow! Nine classic arcade games on one disk! It's a dream come true – or at least, it is if you like classic arcade games, or if you're into getting value for money. Dave Munsie's made quite a name for himself for his games – he uses *GFA Basic* to its best effect to recreate the heady days of the early '80s, with games such as *Space Invaders, Centipede, Frogger* and *Donkey Kong*.

Although they're written within the constraints of *GFAB*, they are all amazingly accurate and fast. At the beginning of *Kid Kong* (*Donkey Kong*), the Kong beast jumps up and down, causing the girders to slip down into the ramps – just like in the coin-op. *Space Invaders* even improves upon the original, with added movement from the Invaders. The only problem we have is that some of the graphics are directly lifted from the original games involved – Mario stars in *Kid Kong*, and Bub appears in *Kid GP* (*Parasol Stars*). This could cause some copyright headaches for Dave, and it's worth slightly altering them in future to avoid problems. As a package, this is the best we've seen for ages.

Get this disk, and make sure you send off your $5 registration fee afterwards, so that Dave can continue churning these games out.

STF RATING 92%

The *Invaders*. Weren't they weird-looking chaps that couldn't bend their little fingers? Seems a bit strange that the supposed master race can't even do that. No wonder the human race won the day.

ENDURANCE

GOODMANS INTERNATIONAL DISK GD2163

Endurance is an eerie 3D adventure written using Domark's *3D Construction Kit* (*3DCK*). In a moon base on a distant planet, the galaxy chiefs are planning to detonate an explosion to destroy thousands of suns and planets to make way for an inter-stellar by-pass – sounds familiar?

Using a large array of icons, in the usual style of *3DCK*, your tasks are to: find and disarm the detonator; deactivate the missiles on the planet surface; find the shuttle power source; then escape the sector using the fixed shuttle. The atmosphere is eerie not least because of the total lack of sound in the game – something which is fixed by registering the Shareware fee, apparently.

Endurance makes great use of *3DCK*, with lots of rooms to explore and objects to examine and use. The puzzles are fairly tough, but apply a bit of logic and you're away. There are plenty of them, too, so a good few hours of wandering around a moon base could be yours.

The Shareware registration fee costs £8.

STF RATING 90%

PACMAN ON Es

DIGITAL DREAMS, STE ONLY

Pacman, as far as we're concerned, takes the award for the most dubious game concept of all time.

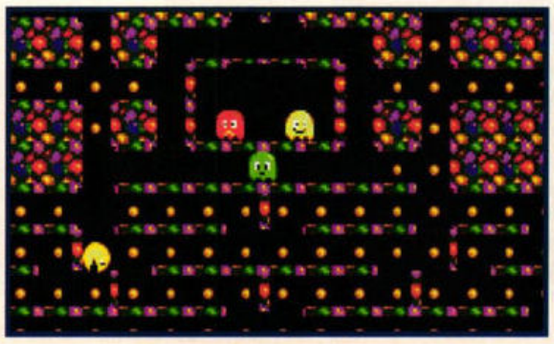
Come on – a yellow man, racing around a maze in a frenzy of pill-gobbling, being chased by multicoloured ghosts? Then, if you eat an extra-special tablet, the ghosts turn blue then run away, and you get the chance to eat them. Not quite the kiddies' cutesy arcade game that it's cracked up to be, really. It's more like hallucinogen city, if you ask us.

Digital Dreams, in creating their *Pacman* clone, spotted this probable reference to LSD-induced psychoaction, and saw fit to call their game *Pacman on Es*. Right or wrong, at least they're honest and up front. Anyway, the quality of the game is what counts, and this *Pacman* clone is one of the best we've seen.

All the original elements of the coin-op are here, and in addition the mazes become more colourful and a lot more varied as you go along. It's a very polished game, and it uses the STE's capabilities, in terms of music, very well indeed .

If you own an STE, send Digital Dreams £1 for this disk, or £5 for the registered version.

STF RATING 88%



***Pacman*: tame, cutesy arcade eat-'em-up, or thinly disguised acid reference? Both, we say - and a great game to boot.**

TOWERS

GOODMANS INTERNATIONAL DISK GD2178 (TWO DISK SET)

Some of the best RPGs on the ST come from the Public Domain. *Towers* is a fine example of the genre, created in America by JV Enterprises. The game is Tryware, which means that you get the full version of the game, but you can only play a few of the levels unless you send off for the manual. As an added incentive to register, there is a puzzle built into the game which involves finding and decoding an Easter egg, and the first person to decode it wins a Jaguar console. Not a bad little sideline.

Towers tells the story of a guy who rides with his two friends to a land populated by towers. His friends get trapped within a particular tower, and the guy hires you to go in and look for them. You get a choice of four characters to play, each with different strengths (as you'd expect), and there are plenty of pickups such as food, weapons and armour along the way. A variety of enemies attack you as you adventure around, but the best has to go to the mad Scotsman (at least, he's wearing a sporran) who wields his club at you. Top stuff.

STF RATING 86%

You can wander around the first tower for hours without meeting anyone, and then someone leaps out to give you a start - and to club you around the head a bit.

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MISCELLANEOUS

ST ALMANAC

EMERALD CITY PD DISK SN48

There have been diaries and calendar programs for the ST since the day the machine was launched, but this has got to be the best one we've seen so far. It's a Shareware program that's worthy of being full priced, it's certainly better than some of the offerings that have appeared before. It's an easy to use, comprehensive diary which includes multiple options for entering appointments, normal diary and almanac entries You can access each option from within any of the other options enabling you to quickly and easily keep all entries up to date.

***STF* RATING 81%**

Little did we know that Mardi Gras and Shrove Tuesday were one and the same. *(Are you trying to be funny, Clive? - Ed).*

GFA MANUAL V3

GOODMAN INTERNATIONAL DISK GD2169 (THREE DISK SET)

GFA Data Media don't exactly offer the best backup and update service when it comes to *GFA Basic 3*, so this three disk set of documents and source code is a real bonus for fans of the language.

The first disk contains a 500K, 25 chapter manual along with a list of abbreviations and comprehensive index. The second disk contains a library of source codes with over 200 examples and listings, each folder of listings on the library refers to a specific chapter in the main manual section. The third disk contains many extras, including music and sample playing programs and their source code, this enables you to see exactly how the programmer has created the software. The only drawback with this manual is that you can only read it on screen or print it out, the on-screen display is cluttered with control codes because it is in document format rather than an ASCII file. Apart from this it's an excellent addition to any GFA programmer's collection.

***STF* RATING 80%**

All sorts of weird and wonderful sound effects can be played with the *GIST* sound player, and you can look at the source code.

DISK MAGAZINES

DIGITAL DISK ST

DIGITAL DISK, ISSUE 3

Disk-based magazines are usually simply a collection of text files or a collection of PD programs, Digital Disk manages to combine both in an interesting hybrid production. We're not saying that this is necessarily a brilliant mag but it seems to balance the fine line between too much of one thing and too much of the other. The disk is made up of a series of text files, pictures and PD files on a wide range of ST related subjects, along with classified ads, letters, stories and the history of computers.

Issue three is the last PD version of the magazine to be available, from issue four the magazine has been subscription only, subscription costs are £8 for four issues or £20 for 12 issues. However, you can get copies of the PD versions of Digital Disk ST by sending an SAE and blank disk to Digital Disk ST, 85 Ceres Road, Plumstead, London, SE18 1HL. Digital Disk is a good disk magazine without the usual spelling mistakes, but it's a shame about the non-stop wibbly tune!

***STF* RATING 77%**

Oh ho! It's the main screen for a disk magazine. Not exactly riveting, but the contents are good. In fact, it's very good.

RTS–TRACKS

FERDY BLASET, STE AND TT ONLY

Issue 57 of *ST FORMAT* is going to be known as the month of the disk magazine. All right, maybe that's a little OTT, but it seems that we haven't had any sent in for years, and now along come two. Mr Blaset, a chap from the Netherlands, edits *RTS-tracks* which covers a broad range of ST-related subjects.

Perhaps the strangest is news of a PD game for the Super Nintendo, which Ferdy has written using a link between his ST and SNES. Also hanging around on the disk is a number of utilities, such as a full screen picture viewer, an upgrade for *Deluxe Paint* so that it runs on the TT, and other general stuff. The magazine itself is well produced. Technically it contains a number of features which you wouldn't normally associate with disk magazines: 1,024 colours on-screen, both low resolution and medium resolution screens at the same time, and sampled music.

There is the odd swearword to spoil it slightly, and the occasional hand-drawn naked woman which makes it look a bit sad. Not bad – the next issue should be interesting.

***STF* RATING 72%**

There's the odd bit of cartoon nudity in *RTS-tracks*, along with some strong language. Ferdy has some interesting things to say.

THE *ST FORMAT* PD DIRECTORY

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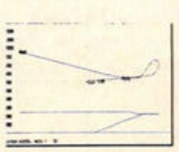

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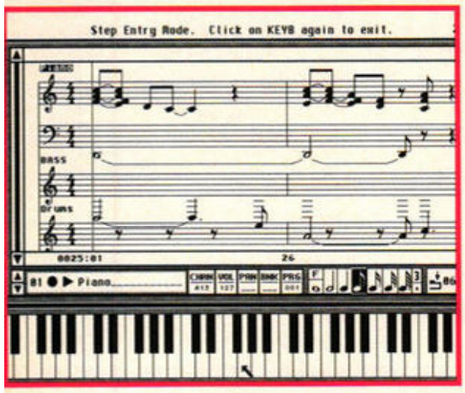
BREAKTHRU

Breakthru is an excellent sequencing program but can *Breakthru 2* really break any new ground?



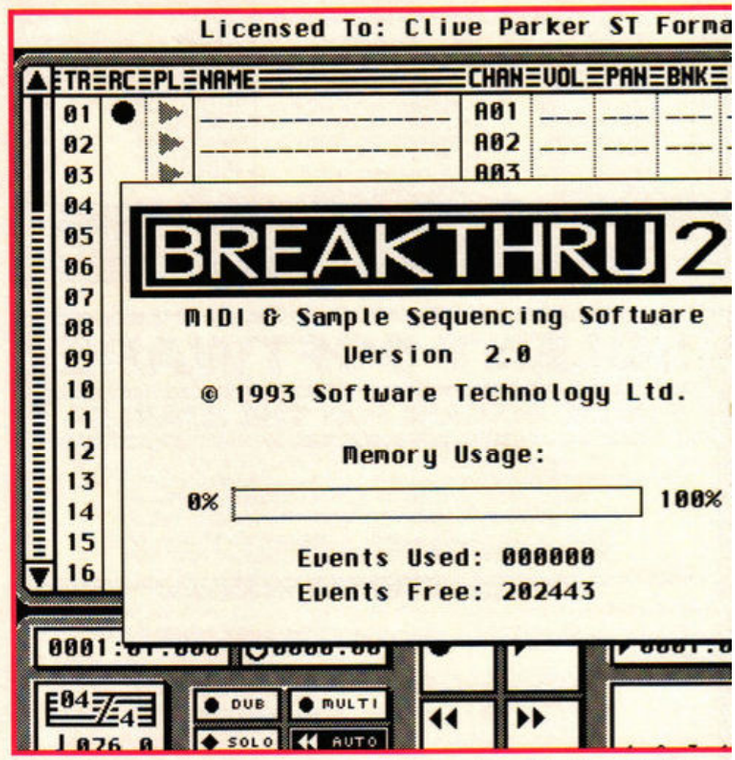
In Score Edit and Step Edit you can input MIDI data from this nifty little on-screen keyboard. By adjusting the gate setting you can create smooth legato notes or short staccato notes. With practice, you can produce excellent music purely from the Desktop.

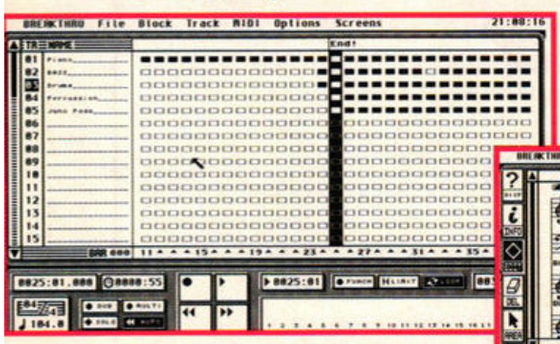
Bam! *Breakthru 2* is here. After just a few months a major upgrade of this excellent program arrives. If you're wondering why there has been a major re-write of the package so soon, don't worry, it isn't half as major as you might have been led to believe. Many features have been added and refined but the look and feel of the program is unaltered. You won't have to learn much to use the new functions either, they flow quite naturally into the program.

The manual has been fully updated to include all the new features. This is an outstanding achievement, all too often software manuals remain the same and the READ_ME.TXT on the release disk grows huge!

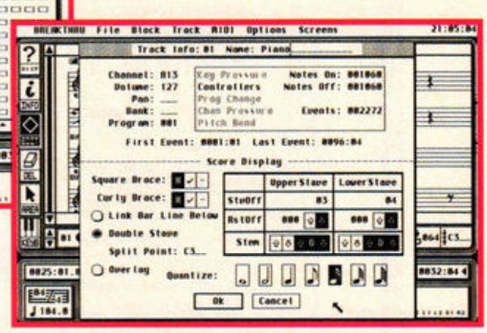
The Diamond Drag editing system is still much in evidence in v2. The two main editing screens, Step and Score, use the system to the full, giving you outstanding note editing control. Using Diamond Drag it is very simple to convert events into MIDI controller events, so adding program changes in the middle of a piece, for example, is no problem. Graphical editing of continuous controller data has also been added so that pitch shift, modulation and all the others can be fine tuned easily. A graphic map for tempo changes is implemented also.

The greatest changes have taken place in the Score Edit section. You are now able to create a multi-track display in the score window and edit all of the visible tracks. The track names are all displayed and it is possible to scroll up and down the score with a respectable rate of screen update. Each track can be displayed as a single or double stave and the

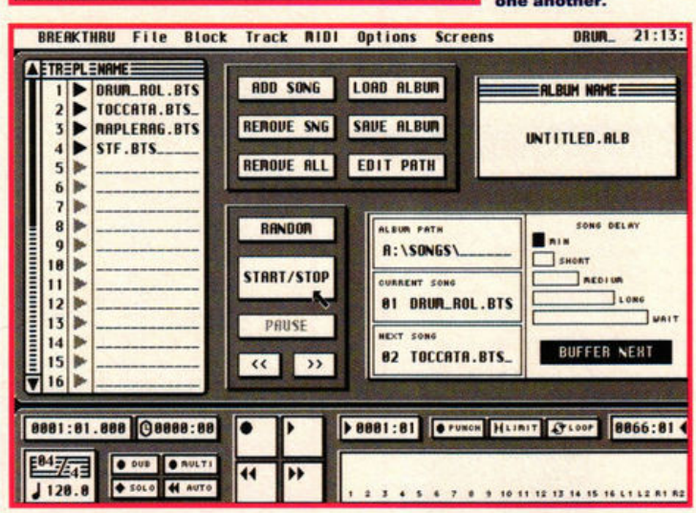


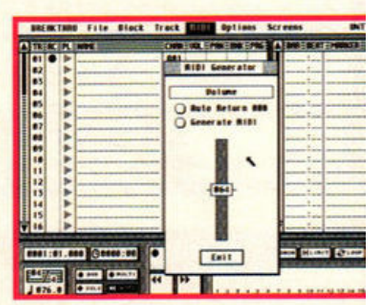


The Arrange page operations are carried out by cutting and pasting sections to a clipboard. It's all a bit messy really, and not at all elegant. A graphical editing option here would have given this new version of the program a real lift.



Score handling in *Breakthru 2* is much improved. In this setup page you can assign a multitude of settings to your score display. Scores for all the different parts are displayed at the same time now so that you can see how the sections relate to one another.





This slider can be absolutely any MIDI controller you wish it to be. Once set up, you can use it to control your synths direct or you can set the sequencer into record mode and record the changes you make. Very useful for recording fade-ins and fade-outs.

Now you can sit back and listen to your MIDI sequences - in sequence! The Juke Box enables you to line up a set of songs and listen to them one after the other.

THE VID

If you buy the new version of *Breakthru* you also get their video manual, for free. The vid describes, in easy to understand language, how each section of the program works. There are 12 lessons on the tape to enable you to split your learning up easily. It is certainly a quick route to picking up on the majority of features in the program. A number are left out, though, because the version used on the tape is v1.10. As a freebie it's well worth a look.

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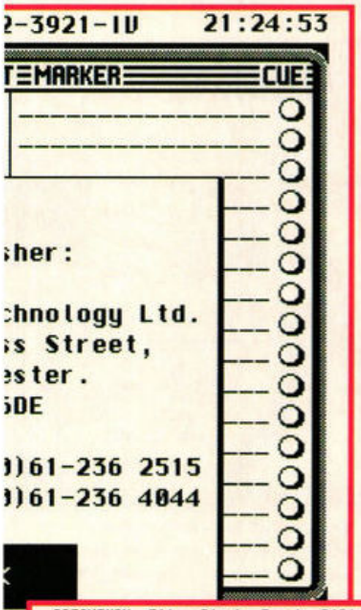
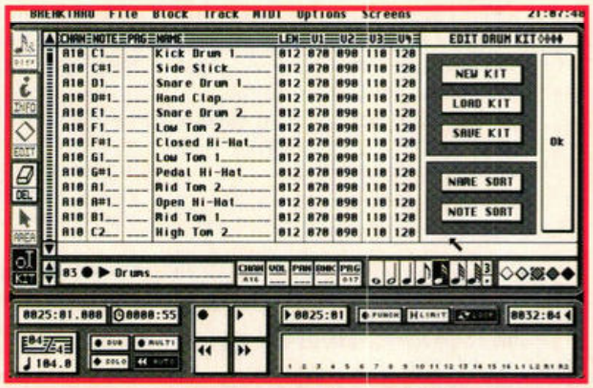
2

WHAT'S NEW IN *TWO*?

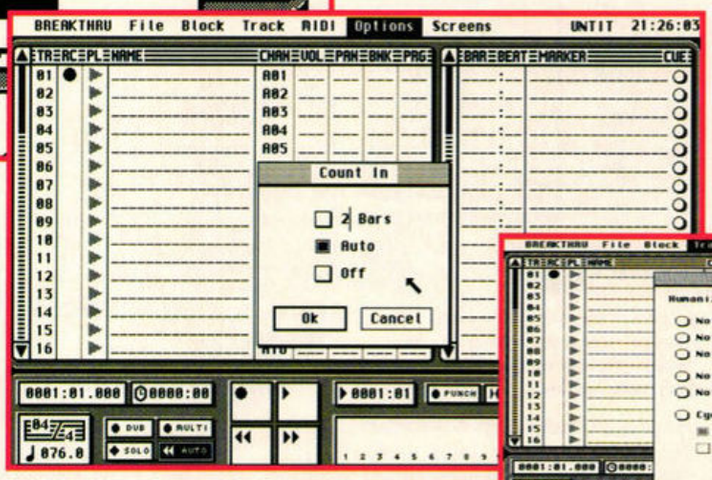
- Files created on previous versions can be used with *Breakthru 2*
- Block Operation Enhancements.
- *Breakthru 2* files also load into *Breakthru 1*.
- Built-in disk and file utilities. (Copy, delete, and so on)
- Choose whether a delete operation leaves a space or closes the gap.
- Continuous Controller Graphic Editing for all controllers. Simply click and drag to alter data.
- Control note stem directions.
- Edit any notes that you see on the score, not just the current track.
- Extensive "humanize" function has been added to *Breakthru 2* to remove the mechanical feel of over quantized or step-entered music.
- Fully updated manual and video manual which is free to new users.
- Group tracks together using square or curly braces.
- Make Space option added to block menu. You can now choose whether a copied block clears space for itself or simply inserts itself into the existing arrangement.
- MIDI Generator Slider to record continuous data in real-time.
- Move option added.
- Much faster score display updates in *Breakthru 2*.
- Multi or single track display.
- Score Edit Enhancements.
- Select different display quantize settings for each track.
- Track names displayed on the score.



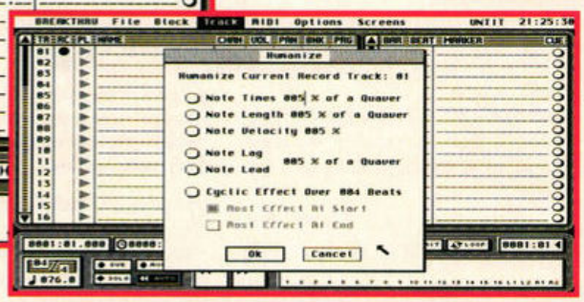
A new name for the company and a new version of *Breakthru*. Software Technology have polished up their flagship sequencer and re-launched it onto an unsuspecting public.



Simply customise *Breakthru* to work perfectly with your drum machine. This section takes you, semitone by semitone, through each drum sound until you've entered them all. This enables the Drum Edit section to list the drum sounds accurately each time you enter.



This is the one feature which *Breakthru* handles terribly. The count-in system works like a dream if you start from bar one, but if you start a record session from any other point it doesn't work at all. As soon as you hit the record button the sequencer starts rolling, regardless.



If your music ends up sounding too "mechanical" because it builds in playing errors you can control the number of errors so that the music develops a very natural feel.

note stem directions are controllable. These, together with a host of other features make the Score Edit page a delight to use and, by far, the most important part of this upgrade.

One word of criticism is needed for the count-in and metronome system. The word is "disaster." It is only possible to make use of the count-in feature if you are starting from bar one of the piece. Should you have defined a block later on in the piece and wish to begin from there, the count-in feature won't work. The sequencer starts as soon as you press the record function. You have to wind back a few bars and start the sequencer from there in order to get a lead-in. Should you start the sequencer in play mode and then activate record the metronome misses this completely and remains resolutely silent.

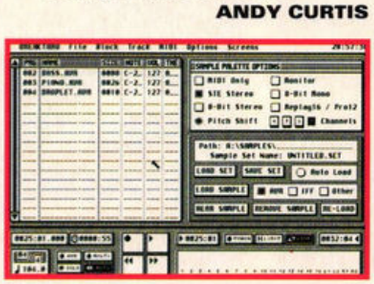
> **"*Breakthru 2* represents outstanding value for money"**

Unfortunately, the arrange page hasn't been upgraded. You are stuck with the same cut and paste to clipboard routines. If a graphical editing system had been implemented here it would have boosted the impact of the upgrade no end.

Verdict

Breakthru 2 is a great sequencing package and it represents outstanding value for money. It's great to see the program being supported so well in the UK and it comes highly recommended by us. However, there may not be enough here to entice you to upgrade from v1.1, unless the Score Edit page is important to you.

ANDY CURTIS



Samples are a key factor in *Breakthru's* success. Up to four can be sounded simultaneously or one can be sounded with four note polyphony. Playback is through a ports from Replay 16's CD quality output to the ST's monitor speaker.

Breakthru v2.01

£149.95 including video software Technology Ltd ☎ 061 236 2515. Upgrade from v1.1 £40 (no video). All STs, preferably with 1MByte or more. Medium or high resolution, TOS 2.06 compatible, Falcon compatible (no sample handling),16MHz compatible

Highs
- Superb sample handling and score editing.
- Easy to use interface and an excellent manual.
- Well presented tutorial video.

Lows
- Slow response to mouse clicks and keypresses.
- Functional but inelegant arrange page.
- Metronome count is a disaster!

What else ?
- *Rave*, at £49.95 from The Digital Muse ☎ 071 828 9462 also handles samples but is far less versatile.

89%

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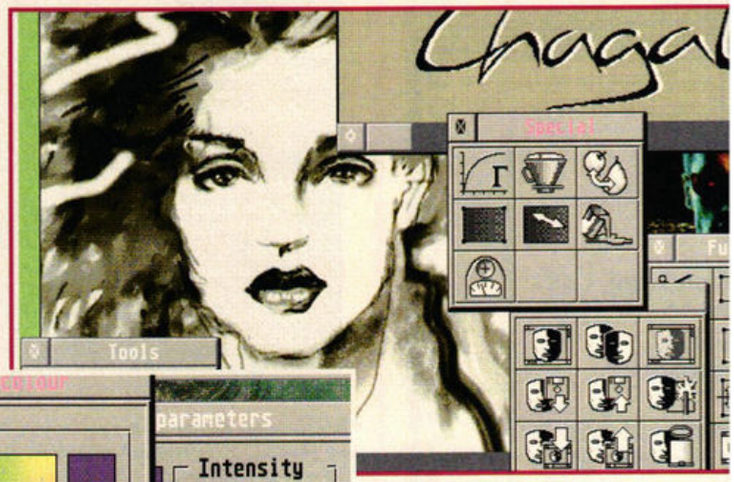
CHAGALL

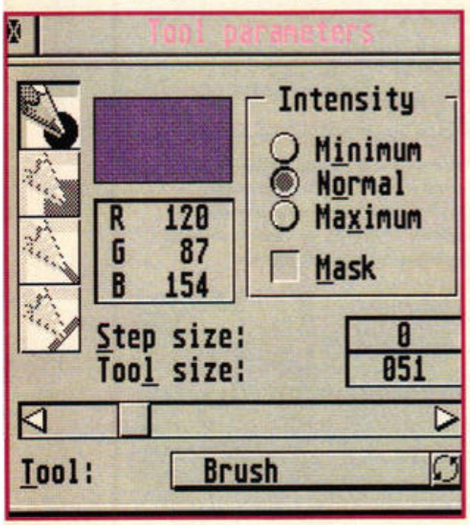
True colour, high colour, every colour you can think of can be used in *Chagall*, the first of a new range of high performance graphics packages for the ST and Falcon



Is *Chagall* the T1000 of the graphics world? See if this powerful package from CGS ComputerBild terminates the opposition.

Chagall is the most complete image processing package yet for the ST or Falcon. It's not just a picture editing program, it's a comprehensive tool for manipulating images, scanning in colour, retouching graphics and creating new images from scratch.

On top of this, *Chagall* is designed as an expandable modular system. This means that when new tools are created to use with the program you don't have to upgrade to a complete new version of *Chagall*, you simply buy the software module and load it into the main program.

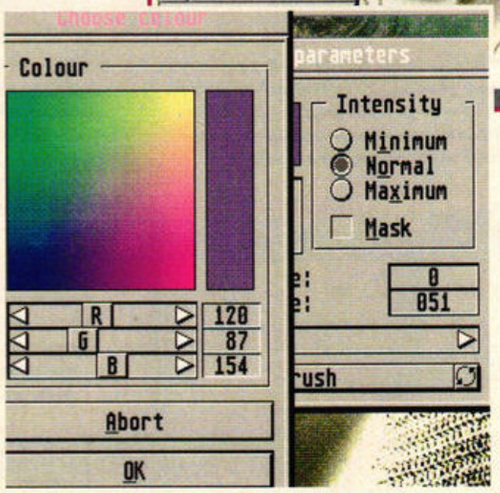


Each tool's intensity, colour and shape is easily modified by double-clicking on it, this takes you to the Tool Parameter dialog box.

What do I need?

You don't need a 24-bit colour graphics card to use *Chagall*, but the display obviously looks a lot better if you do. Any ST, STE or Mega ST with a 256 (8-bit) colour or 16.7 million colour (24-bit) graphics board added is just as capable of using *Chagall* to its full capabilities as a Falcon or TT.

In fact, you don't actually have to use a colour card at all, *Chagall* works quite happily on a standard high resolution ST setup with 2MBytes of RAM and a floppy drive. 4MBytes of memory and a hard drive are recommended if you intend to use the software seriously. Remember that a 640x400 pixel 8-bit picture



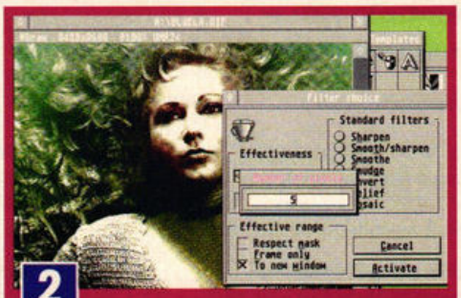
You can choose a new colour from the Tool Parameter dialog box by double-clicking on the colour box. This calls the Choose Colour menu.

You can switch to any of the other tools from the Tool Parameter dialog box by clicking on the tool type at the bottom of it.

GROUND OR FILTERED, SIR?

Choosing filters from the special menu enables you to process a complete image or its mask and send the results to a new window or modify the current window. Filter functions include sharpen, smooth, smudge and mosaic

1 Here's the powerful filter dialog box of *Chagall* with extensive functions and ability to choose what's to be modified.



2 We are going to use the simple mosaic function on the main image, with each square set to five pixels in size...

3 ...and here we can see the result, a completely illegible version of the original picture.

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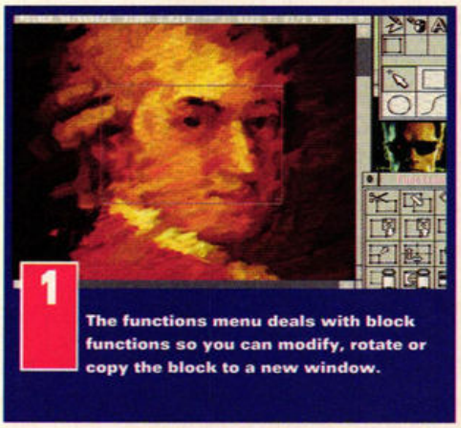
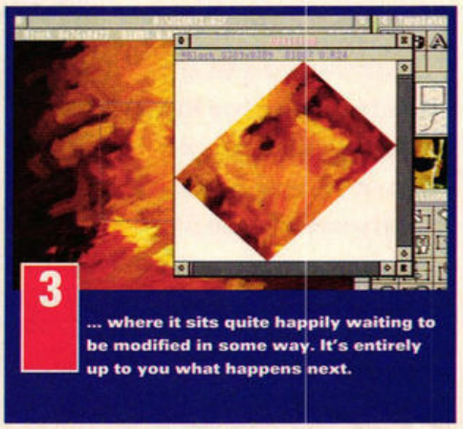
AMADEUS AND THE BLOCKHEADS

Chagall contains extensive block functions, you can select the block function from the templates menu and then create your block on the image by dragging out a rectangle. The block can then be pasted back on the original picture



1 The functions menu deals with block functions so you can modify, rotate or copy the block to a new window.

2 We're going to grab a section of the image of Wolfie, rotate it 45 degrees and move it to a new window...



3 ... where it sits quite happily waiting to be modified in some way. It's entirely up to you what happens next.

uses 256K and a 24-bit picture uses 768K; other features of the program such as the undo buffer and masks take up even more memory.

Even when you use a mono setup the images retain their original colour resolution, so if you are working on a 24-bit colour picture, the image you save is still in 24-bit colour. This is because *Chagall* is resolution independent; you retain 24-bit colour depth on all STs, TTs and Falcons regardless of the limitations of the display output.

Stand by, processing

Chagall is almost *too* powerful. Its pop-up toolboxes can be called at any time from the menu bar or from pressing the relevant function key. All of the main drawing tools have keyboard shortcuts assigned to them enabling you to change functions without resorting to

"*Chagall* is fast, powerful and generates brilliant results"

Scanner bundle

If you really want to be creative then CGS ComputerBild can supply you with a special bundle comprising of *Chagall* and the colour hand scanner head we reviewed in *ST FORMAT* 54, if you missed that issue turn to page 62 to order it.

Instead of using the ColorBurst software, the scanner can use *Chagall's* own built-in scanning software which gives much better control over the quality images generated. The cost of the CGS *Chagall* and scanner bundle is £499, a bargain for this kind of graphics power.

CHAGALL'S TOOLBOX

All of Chagall's picture modification routines are contained in the toolbox menu, from here all of the effects and functions of the program are accessed including masks, drawing tools and graduated fills

Here's the same setup on the Falcon in 256 colour mode, you can see that apart from the picture being in colour, the toolboxes are much clearer too.

All of *Chagall's* tools are available at any time in pop-up menus, you can position them anywhere on the screen while you work on a picture.

LOADS OF TOOLS

This is one of the most important toolboxes in Chagall, the Tools toolbox. This toolbox contains all the main drawing tools, such as the pen, chalk and eraser

1 DRAWING PEN: Draws in solid colours, very similar to pens in other programs except that you can vary the intensity – if you set it to minimum intensity it takes several strokes to completely paint over the background.

2 MARKER: The marker is a transparent tool and only colours the background if one of the RGB values is lower than the marker colour. You can choose a marker colour by hitting <Alternate> and clicking on a background colour.

3 TONER: The toner works in the opposite way to the marker, it only colours the background areas with RGB components darker than the toner colour.

4 CHALK: Similar in use to the drawing pen although the result is more grainy. The chalk tool is very useful for creating atmospheric images.

5 BRUSH: Also similar to the pen in action, but tends to "run out of paint" on long strokes in the same way as a real paintbrush does.

6 AIRBRUSH: Covers the background gradually after multiple passes; if the intensity is set to a low level the background is never totally covered.

7 LIGHTENER: When you use this tool it gradually lightens all the colours it passes over until they become white.

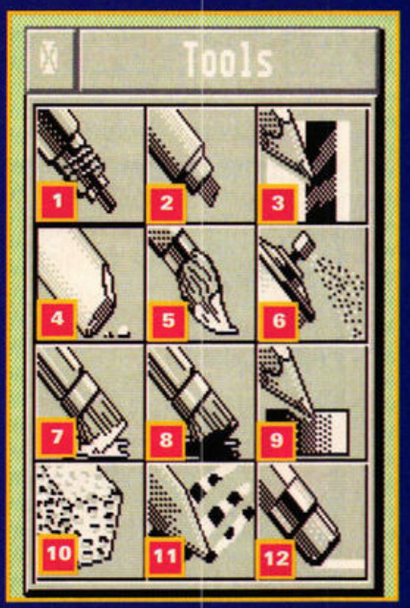
8 DARKENER: Does the opposite to the lightener, surprisingly – all colours are darkened until they become black.

9 DECOLOURISER: Removes the colour from any area that it passes over and replaces those areas with greyscales.

10 SPONGE: Smudges the boundaries of colours by mixing pixels adjacent to each other, acting in the same way as wiping a wet sponge over a watercolour paint.

11 RESTORER: Uses information from the Undo Buffer to replace altered parts of the image with the original details.

12 ERASER: This works in exactly the same way as the drawing pen does except that its colour is fixed as white.



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a menu at all. Setting up the parameters for the various tools can take some getting used to, but once you have figured out how to set up one specific tool you know how to set up all of them. Some of the parameters present in the configuration dialog boxes have never been seen in ST graphic applications before; altering the intensity of the colour being used actually makes it more or less transparent. This means that if you set the lowest possible intensity you gradually paint over the background, the background colour shows through until several strokes have been made over the same area.

"*Chagall* is a masterpiece of design, the toolbox windows and sub-dialogs are just about the best designs ever seen"

You can take quite a while to get to know how to use the functions in *Chagall* but the comprehensive manual and its excellent tutorial section make it light work. That said, once you have learned the best way to use the functions in *Chagall* you never forget them.

As with all professional quality software of any sort, the only way to get the most from the package you are using is to keep practising until you can use it with your eyes closed – er, not exactly recommended practice when you are using a graphics program!

Final score

One or two of the mask functions don't quite operate in the precise way described in the manual, this is a pity because the masks are potentially the most powerful features. A bit of experimentation soon sorts that out so it's not too much of a problem. Apart from this there is nothing to fault with *Chagall*.

Chagall is a masterpiece of design, the toolbox windows and sub-dialogs are just about the best designs we've ever seen on any Atari computer, in fact, it screams professionalism at you whenever you use it. If you're writing a professional program, take a look at *Chagall*. The fact that it's capable of having extra effects modules added to it later in effect makes it "future proof."

Chagall is fast, powerful and generates brilliant results, it's definitely the best image processing program around.

CLIVE PARKER

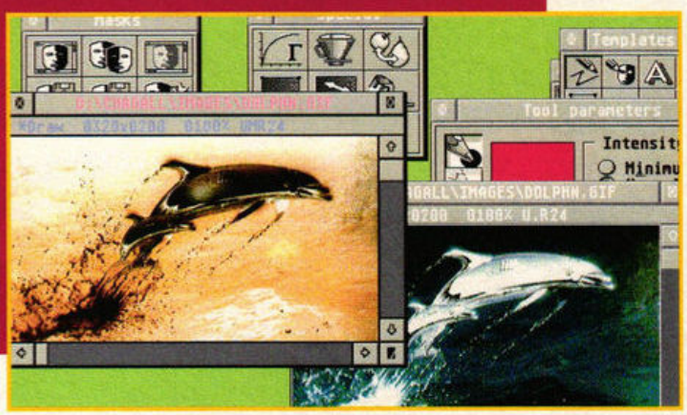
COMPATIBLE PICTURE FORMATS

Chagall can cope with many of the more popular picture formats used on any Atari computer, PCs and Apple Macs. Here's a compatibility table

File format	File description	Compression type	Colour depth	Picture size
ESM	Cranach Studio (Atari)	none	up to 24-bit	any size
TIF	TIFFV5.0 – for loading	yes	up to 24-bit	any size
	TIFFV6.0 – for saving	(LZW and RLE)	up to 24-bit	any size
GIF	GIF-format (MS-DOS)	yes	up to 8-bit	any size
IMG	GEM-Image (Atari)	yes	1-bit	any size
PAC	STAD picture (Atari)	yes	1-bit	640 x 400
PIC	PIC- or Screen-format	no	1-bit	640 x 400
PI3/PC3	Degas monochrome (Atari)	yes (for PC3)	1-bit	640 x 400
IFF	Interchange File Format (in preparation)			
PCX	PC Paintbrush (in preparation)			

8-BIT MASKS

Masks are used in *Chagall* as a kind of stencil that you can lay over a picture when you are creating a new effect, the strength of the effect is determined by setting parameters. Most stencils in graphics packages are restricted to straight 1-bit digital masking, you either use the mask or you don't. *Chagall's* masking effects are 8-bit, that means that there are 256 different levels of masking available. All of the tools in *Chagall* are designed so that their intensity can be controlled by a mask; you choose whether to use the mask or not from the specific tool's dialog box.



Chagall's powerful masks enable you to create some stunning effects.

CREATING HALFTONE MASKS

You often need a mask that is an exact copy of your original image, so you need to convert the image to a halftone picture using 16 greyscales and save it to disk

1 Load the colour version of the picture to be converted and select the Special toolbox, the apple and pear icon is the picture converter.

2 Select halftone from the Convert Picture Data dialog and click on Activate, your picture is converted to halftone and can be saved as a mask.

Chagall

£199 CGS ComputerBild
☎ 081 679 7307

Highs
- Works on all STs, TTs and Falcons.
- Resolution independent.
- Very powerful processing functions.

Lows
- Quite expensive, but worth it!
- Needs 4MBytes of RAM and a hard drive to work effectively on an ST.
- Can be slow on a standard ST.

What else?
- *Prism Paint 2*, £99 from 16/32 Systems (☎ 0634 710788), good drawing package, not so hot on image processing.
- *Studio Photo*, £79 from Compo Software (☎ 0487 3582), good starter package for image processing but not too complex.

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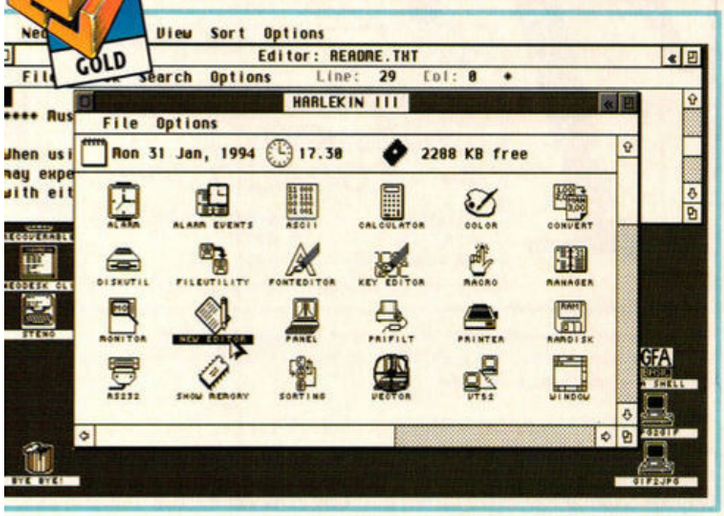
HARLEKIN 3.1

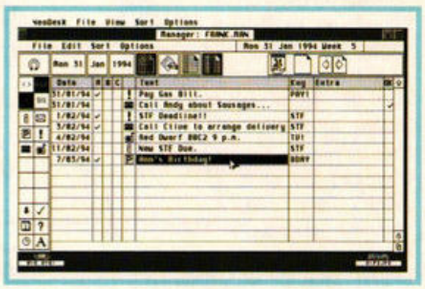
Make using your ST much easier with this all-in-one Desk Accessory



Harlekin's features are accessed via its Desktop. Double-clicking on the icons ns the modules, and functions load from disk as you need them and release luable memory as they finish.

If you use a text editor, disk editor, replacement file selector, comms package, formatter, control panel, RAMdisk, printer spooler or a Filofax-type Information Manager in any combination, you can throw the lot away and do the whole lot from one Accessory – *Harlekin*.

At the heart of the program is the manager. More than a computerised diary, it can store your appointments, keep track of 'phone numbers and contacts, dial the 'phone if you have a modem, and you can even write and store a 100 page report, all linked to a calendar system. It's so good that after just a few hours with *Harlekin*, it's likely to be running your life so smoothly you'll wonder how you coped without it.



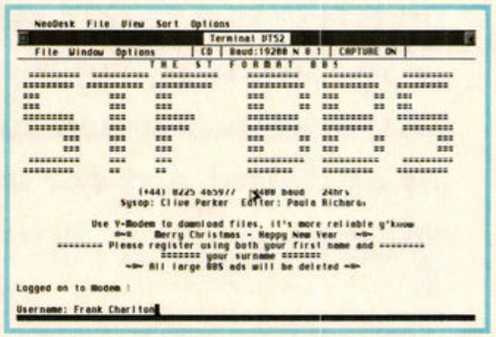
The manager is *Harlekin's* core. A combination of editor, filing system and personal information manager, it can turn its hand to anything from reminding you of important events to providing a way of completely automating your everyday life.

Desk diary

Events can have personal notes and even icons assigned to them, and you can automatically create repeating reminders for things like paying bills on a certain day every month. You can switch between displays for particular days, months or even years, and the manager's uses are limited only by your imagination.

The program also provides a huge suite of utilities to implement everyday tasks like writing letters, copying files or even calling a BBS with a modem. Everything runs from one Desktop-style window, and each individual module only loads when you need it, so it runs along very comfortably even on a 520ST, as long as you make sure you configure it carefully.

The macro processor can record and replay whole sequences of keypresses from a single tap, so you could store your name and address and squirt it into your word processor when you need it. Well-behaved programs which use keyboard equivalents for menu actions can have whole tasks automated to a keypress so there's no more hunting for the manual if you forget how to do something. Macros are extremely powerful if they're set up properly and *Harlekin* really excels here.

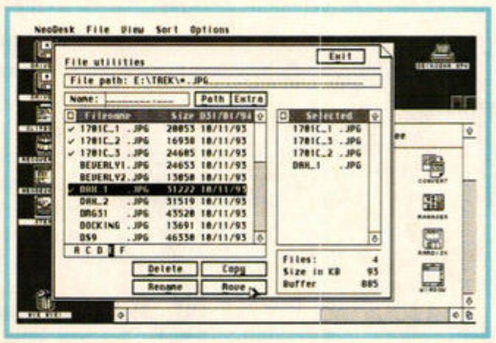


Harlekin comes complete with a terminal to connect you to various on-line services with a modem. You can upload and download files, automate the process of logging on with a simple script language, and a buffer can capture your on-line session to disk.

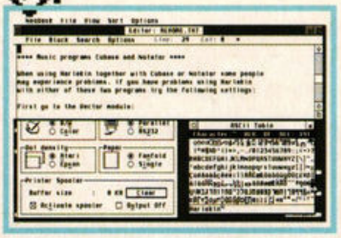
Verdict

Even without the manager, *Harlekin* does almost everything you're likely to need – it's indispensable. If you only buy one utility this year, make it this one, and prepare to revolutionise the way you work with your ST.

FRANK CHARLTON



A replacement for the in-built TOS file selector is provided, with enough options to ensure you don't need to quit a program to do normal Desktop tasks like copying, moving, renaming or deleting files, formatting disks and creating folders.



The text editor is very handy to have around, with up to four files held in separate windows, full word wrap and a speedy search and replace. You can even enter unusual characters from the pop-up chart with the mouse.

What else does it do?

ALARM – Alarm clock for important reminders.

CALCULATOR – Fully functioning maths tool.

DISKUTIL – This formats and copies floppies.

FONTEDITOR – Replaces the system font.

KEYEDITOR – Redefines your keyboard layout.

MANAGER – Full personal information manager.

PANEL – Replacement system control panel.

PRIFILT – Printer filter to convert odd characters.

SPOOLER – Printer spooler for background printing.

RAMDISK – RAMdisk which can save its contents to disk.

VECTOR – Enable and disable modules and system vectors used.

WINDOW – Control window setup, and change colours on Falcon and TT.

Harlekin 3.1

£59.95 Hisoft
☎ 0525 718181
Upgrades £19.95 from v2, £39.95 from v1 ST, TT and Falcon, 1MByte recommended

94%

Highs
- Does just about everything.
- Improves the way you work.
- Only uses memory as required.

Lows
- Slightly complex.

What else?
- Nothing.

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TEXTSTYLE

Textstyle is a fascinating text program. It is, really it is. Don't just take our word for it, read on and find out for yourself

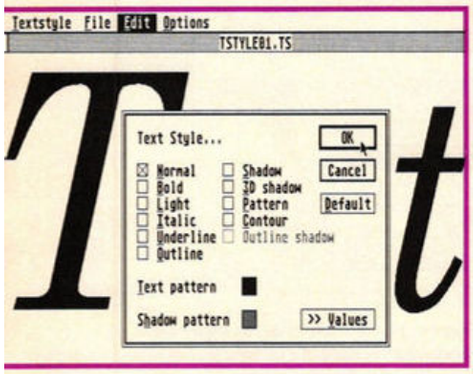
To produce fancy text or impressive headlines for documents you need an expensive desktop publishing program, don't you? Not any more, because the ST Club have now released a program called *Textstyle* that does this quickly, cheaply and easily.

It's useful if you want to produce headlines, logos or any other text-based artwork. Even if you already have a DTP program, *Textstyle* can provide output and effects not possible with your existing software, and save the results as IMG or TIFF files so you can import them into other programs. You enter text into its GEM window, then restyle the words by displaying them in any *Calamus* or GEM font. Although it uses GEM or *Calamus* fonts, you don't need *Calamus* itself – or any software that uses GEM fonts – *Textstyle* doesn't even use GDOS!

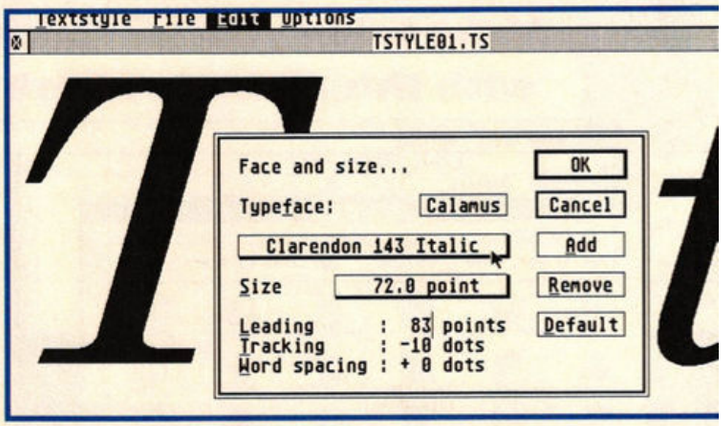
Enter up to 200 characters' worth of text long direct from the ST keyboard or load text from disk, where you see it in your ST's usual system font. To restyle the text use the Style menu to load in a new font. Fonts are stored in folders on the disk, and some *Calamus* and GEM fonts come with the program. Plenty more fonts are available from PD and commercial sources, and they can also be accessed by the program. When you need to load in a font use the file selector to specify any destination, or you can designate a default path to load from.

"Most design or font programs are complex and difficult to learn, but *Textstyle* is dead easy to use"

Once you've seen what your text looks like in the new font, you can change the height of the letters, and apply styles and fills. You can try out many of these in combination, and add shadows in any direction. Changes made to the text appear straight away, and if you don't like the result it's very easy to change it again. There are many subtle adjustments possible, like the degree of boldening and the slope of italic text.



The words on-screen can be re-styled by selecting the various options in this menu by clicking on the check boxes. Click on OK, and the results are obvious immediately.



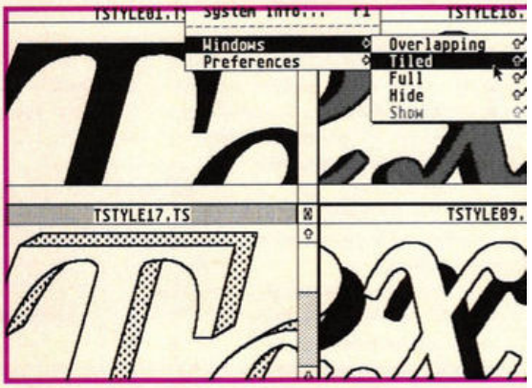
The text you enter into *Textstyle* is shown in a standard GEM window, so you can scroll about to see it all. Here the word *Textstyle* has been styled in a *Calamus* vector font at 72 point.

Textstyle comes supplied on a double-sided disk and has a well written, fully illustrated 40 page A5 size printed manual. It runs on any ST, STE, or TT in any resolution, and is compatible with the Falcon too.

Verdict

Most design or font programs are complex and difficult to learn, but *Textstyle* is dead easy to use. There's no need to study the manual heavily; it advises you to learn by playing around with the software. Your text can be given some very eye-catching treatments via alternative fonts and *Textstyle's* effects and all with little skill and artistry required on your part. The results load into programs like *Calamus, PageStream* and *That's Write* – it's an easy way to create original and interesting headlines or logos. You can print out your creations direct via *Imagecopy* if you don't have suitable desktop publishing or word processing software. This first version of *Textstyle* is likely to grow into a more fully featured program with many new enhancements, but this is a great start – and it's reasonably priced.

PETER CRUSH



You can have up to seven *Textstyle* windows open at once on an ST, more with a Falcon or MultiTOS. This menu enables you to arrange the windows as you wish.

Textstyle's top ten features

1. Create headlines and logos on-screen from GEM or *Calamus* fonts.
2. Import ASCII text from disk or direct from keyboard for processing.
3. The size of your lettering can vary from 0.1 to 999.9 points, in 0.1point steps.
4. A wide use of fonts are possible, some are provided but you can use Public Domain or commercial ones.
5. Text styles include bold, light, italic, outline, shadow, and 3D.
6. Adjust amount of boldening, outline width, shadow offset, italic angle.
7. With *Textstyle* you can apply fill patterns independently to both the text and to the shadow.
8. Leading between lines of text is adjustable in one point steps.
9. Space between words and letters is adjustable in single pixel steps.
10. Results can be saved as IMG or TIFF format, or in *Textstyle's* .TS format

Textstyle

£14.95 The ST Club
☎ 0602 410241

Highs
- Easy to use.
- Almost unlimited range of fonts and styles possible.

Lows
- No built-in printing facilities at present.

What else?
- Some art programs can use fonts, but usually only blocky GEM ones, and not this slickly.
- No real competition in this price range.

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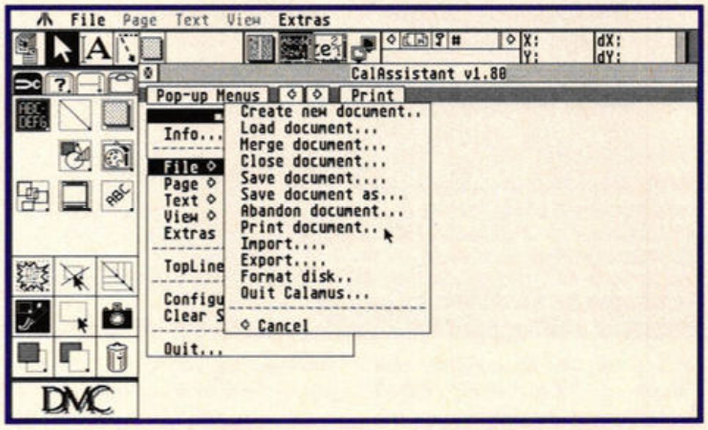
CALASSISTANT

All those icons, features and options of *Calamus v1.09* can be too much if you're new to desktop publishing, and the manual offers little in the way of advice. Waiting in the wings is the Accessory, *CalAssistant*. It can be called up from within *Calamus*, and assists you while you DTP your way through your latest masterpiece.

CalAssistant has its own GEM-like window which you can move around the screen, and its own system of menus with which you select the topic you need help on. The help window displays text and graphics, especially useful to illustrate the exact functions of the *Calamus* icons. Another helpful feature is that the relevant page number in *Calamus'* printed manual is given on-screen for each item you look up. As *Calamus v1.09* isn't being developed further, these references are likely to be correct for ever more. Another innovative idea is that *CalAssistant* uses the "Help" feature already built into *Calamus* by displaying its own messages there too.



▮ *CalAssistant* is essential if you want to get to grips with *Calamus*. If you have a Moniterm or other large monitor, the help window can be positioned so you can see all the document.

Because it needs 145K of memory, and *Calamus* requires 1MByte, you need an ST with 2MBytes of RAM, and both programs only run on mono monitors. A hard drive is recommended, but you can do without one at the expense of speed. Installing *CalAssistant* is easy – just copy the files to your floppy boot disk or the boot partition of your hard drive. When you re-boot, *CalAssistant* is in the Desk Menu, whether or not *Calamus* is running.

Verdict

Now that *Calamus* is available for a reasonable £99 (from JCA Europe ☎ 0734 452416), its appeal is pretty wide so *CalAssistant* could do well because of that. Other than reading the *Calamus* manual, there is no other on-line help system to compete. But given that *CalAssistant* includes a 40 page A4 manual complete with a set of tutorials to work through, and a complete Helvetica font set, it's not bad value if you want to master the excellent *Calamus* DTP system.

PETER CRUSH

CalAssistant

£19.95 The ST Club
☎ 0602 410241

Highs
- Slick on-line help.
- Tips and tutorials included.

Lows
- Requires 2MBytes and a hard drive to work well.

What else?
- Read the manual or experiment; no other similar utility exists.

83%

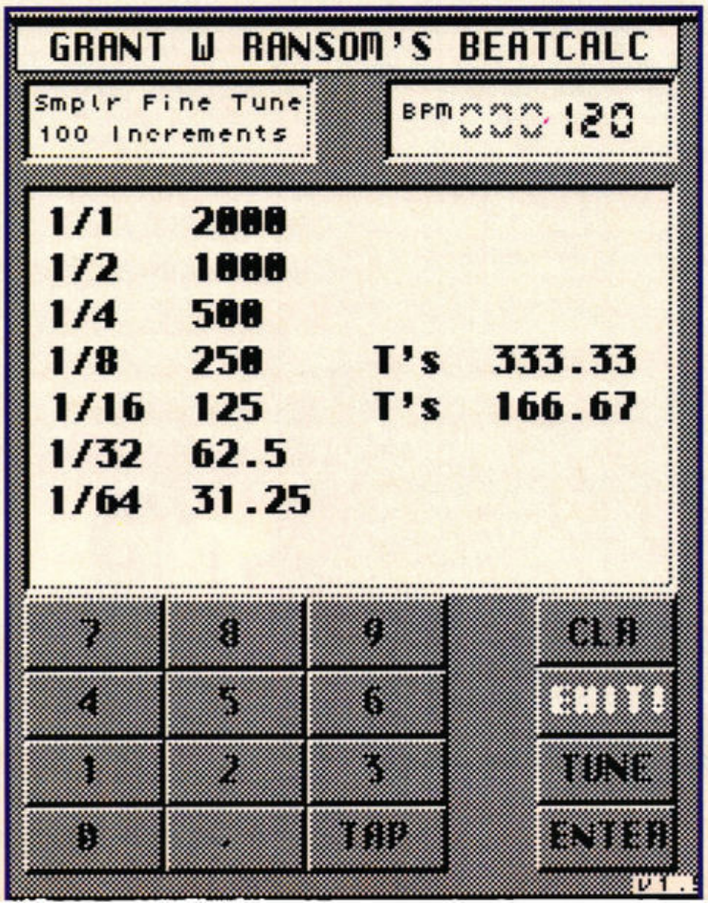
BEATCALC

This is probably the Accessory that you never realised you needed. The program is quite a specialised one, but if you're into MIDI and recording or using sample loops in sequencers this may be just the job.

First, *Beatcalc* can work out echo repeats in milliseconds to match a given tempo. Suppose you have a piece of music which runs at 120 beats per minute (bpm) and you want the echo to repeat at intervals which match. Type in 120 on the keypad and hit <Enter> and a selection of delay times appears. The values represent, for example, crotchet, quaver and semi-quaver delays. If you want one repeat per bar select the milliseconds displayed in the "1/1" row, if you want four repeats per bar then select number displayed in the "1/4" row. Once you have the value you need in milliseconds it doesn't take long to set up your effects unit.

There is also a facility for you to tap the keyboard to the beat of a song and have its average beats per minute (bpm) displayed on-screen – very handy if you're copying a track and aren't sure about its tempo.

You can work out how much to de-tune drum loops to make them fit with different tempos. If you have a drum loop taken at 120 bmp and you need it to work at 123 bpm, *Beatcalc* tells you how many steps to de-tune it on your sampler. There is provision to set the steps according to the sampler you use.



Verdict

Beatcalc is an unusual program, but very welcome. It works with all major sequencers and dispenses with the reams of beat charts that you needed until now. It's stable and reliable whatever version of TOS you are running. Since Reelfeel are distributing it they've included five of their MIDI drum loops, these serve as a sampler of what Reelfeel do best and they make a good disk great value for money. If you're into MIDI and recording, buy with confidence.

ANDY CURTIS

▮ Grant Ransom reached for his software catalogue to order an echo repeat calculator and discovered that no one had written one. So he did the decent thing and wrote *Beatcalc* and added a drum loop beat tuner.

Beatcalc

£13.95 Reelfeel Groove Library ☎ 071 241 0621
high res only

Highs
- Simple to use.
- Quick and accurate.

Lows
- No GEM window.

What else?
- Nothing yet.

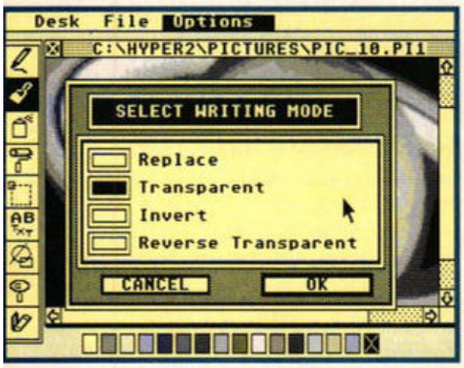
81%

www.stformat.com

Hyperpaint 2 works on all STs and on all resolutions. So get loading and let your imagination run wild. Clive Parker did, well, almost...

GET

You can hack blocks out of pictures and manipulate them in loads of ways, stretching, rotating, flipping, skewing and outlining to your heart's content.



Selecting different writing modes influences the way your text looks on-screen. You can use transparent text, outlined text and reversed text to create different looks.

Hyperpaint 2 is a powerful drawing and painting tool that enables you to create brilliant pictures quickly and easily. You can use it an any resolution on any type of ST which means it's useful to everyone who's got one.

One of the big advantages of *Hyperpaint 2* is its ability to run without GDOS being installed – the original program refused to run without it – freeing up more memory for pictures. Unless you actually need to produce printouts or use GDOS fonts in your pictures there is no need to install GDOS at all, you can get by perfectly well without it. Ready-to-use GDOS installations were supplied on the Cover Disk along with instructions for using the program. If you haven't got *ST FORMAT* issue 54 with the full program of *Hyperpaint 2* Cover Disk then turn to page 62 to order your copy now.

"Hyperpaint 2 has the ability to run without GDOS being installed"

The main screen of *Hyperpaint* is easy enough to get around. You choose your colours across the bottom of the screen, your tools from the icon bar to the left of the main window and your other options from the drop-down menus.

Writing modes

In many of *Hyperpaint's* functions you can select the writing mode of the function you are using, this affects the way the image looks on the screen when you perform the function. Functions that can use the different writing modes are the block functions, the text functions and the fill functions. There are four writing modes in *Hyperpaint 2*.

Replace mode simply replaces the original image on-screen, completely overwriting the previous image. Transparent mode superimposes the pattern over the

HYPERPAINT'S ACTIVE AREA

It's dead easy to find your way around the main screen of Hyperpaint, almost every function is available from just one or two clicks of a mouse button

1 Menu bar: Split into file functions and program options, you can load and save images and palettes from the File menu and adjust the parameters of the program's functions from the Options menu.

2 Pen: For freehand drawing on-screen in your selected colour. Double-click on the pen icon to call a dialog box featuring eight different pencil sizes to choose from, you cannot define pen shapes.

3 Brush: Another method of drawing on-screen. The brush has eight different shapes to choose from, the big difference from the pen is that you can define your own shape or use blocks as brushes.

4 Spraycan: Sprays pixels on your picture in a semi-random way, you can define the size of the spray and the speed the pixels are painted by double-clicking on the spraycan icon.

5 Fill: Double-click on the fill icon and you are zipped to the Fill Options menu, here you can choose a colour or mono fill, load and save fill patterns to disk and choose the fill mode.

6 Blocks: *Hyperpaint's* block menu has 12 cutting and pasting options to play with. Using the Rescale option enables you to shrink or enlarge a block keeping its original aspect ratio.

7 Text: Selecting the text icon enables you to enter text in the current style anywhere on-screen, double-clicking the icon takes you to the Text Options menu where you can choose the text style.

8 Shapes: A swift double-click on the shapes icon enables you to choose from a wide range of lines, rays, curves, boxes, polygons and circles. There are also shaded versions of the enclosed shapes.

9 Zoom: The zoom function built into *Hyperpaint* is very powerful with 16 different levels. The ability to move around the picture, alter the zoom level and change the colour is very helpful.

10 Knife: This is very similar to the standard block functions except that you can cut around objects in irregular shapes. You can then manipulate the block in the same way as a standard rectangular block.

11 Colour palette: This bar contains the current colour palette, just click on any colour to use it. Double-clicking on any colour enables you to change it using a set of sliders or picking a new colour from the palette.

12 Work screen: All the action takes place here. You can scroll around the screen using the slider bars in the window or a right mouse-click displays the current picture full screen.

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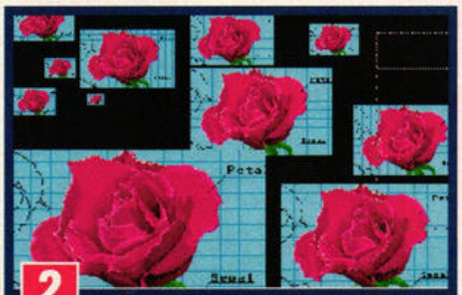
HYPERACTIVE

USING YOUR BLOCK

Hyperpaint 2 contains some very powerful and easy to use block operations enabling you to muck about with images until they are almost unrecognisable. The block functions are exactly the same in both the standard block and the knife modes, the only difference is that you can cut out irregular shapes using the knife

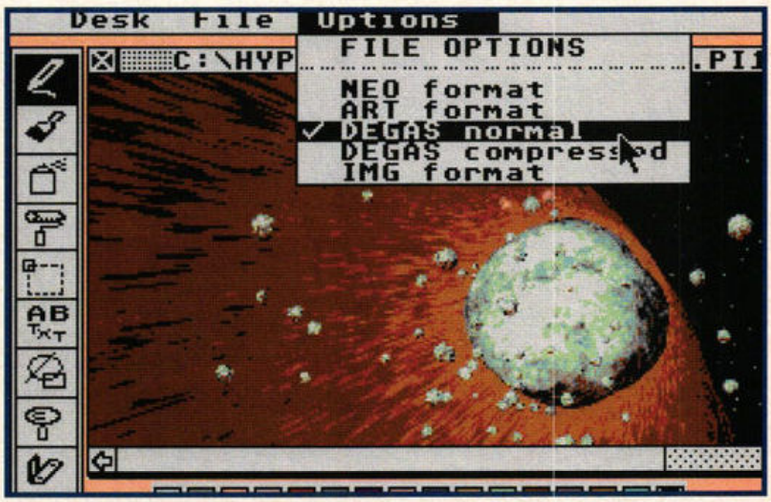
1 Load up a picture and click once on the Block icon. If you need to cut a large block or the whole screen then press the right mouse button to go to full screen mode. Now press the left mouse button and draw a rectangle around the area to be cut out.



2 Go to the Options menu and select Blocks to call the Block Options. There are 12 functions to choose plus saving and loading of blocks. Select Rescale and go back to full screen mode. Now you can paste small or large copies of the block.

3 Now try a few more options from the Block Options - Rotate, Skew, Outline and Smooth all have some weird and wonderful effects on your final image. This is a complete screen cut and smoothed. If you don't like it delete the image and start again.

Many features of *Hyperpaint* are accessed through the Miscellaneous function in the Options menu including palette cycling, smear effects, mirror effects and loading and saving palettes are all called from this menu.



To choose the type of file to load or save, go to the Options menu and select Filetype, this opens the File Options menu enabling you to choose between five different types of picture formats.

original image, the background colour of the block or fill you are using is transparent and the original image shows through.

> **"A powerful drawing and painting tool that enables you to create brilliant pictures quickly and easily"**

In Invert mode the background colour of the block or fill is transparent and all the pixels in the original image that correspond to the new image are inverted. This leads to strange effects in colour pictures. Reverse Transparent mode makes the ink colours of the block transparent enabling the original image to show through.

Picking a picture format

Hyperpaint 2 is one of the few paint packages for the ST that enables you to load and save Image file format pictures (.IMG) in low, medium and high resolutions. This means that you can load high resolution clip-art into *Hyperpaint* in medium resolution and then save it as a medium resolution *Degas* file.

You can then use the medium resolution clip-art you have just created with your favourite DTP or word processor with no restrictions because of resolution. ***stf***

Irregular blocks can be cut out and pasted back onto a picture to create interesting and weird results. Irregular blocks can be manipulated in the same way as normal blocks.

Get the manual

To get the most from *Hyperpaint 2* you should get the manual – it's only £5.99. Make your cheque or a postal order payable to Atari Corp UK Ltd and send it to: *Hyperpaint 2* Manual Offer, PO Box 555, Slough, Berkshire SL2 5BZ.

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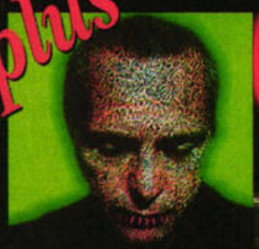

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◆ STATESIDE SPECIAL

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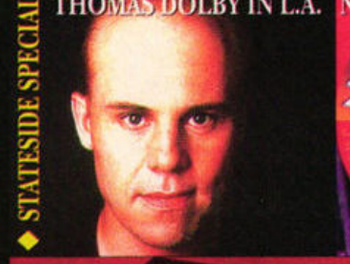
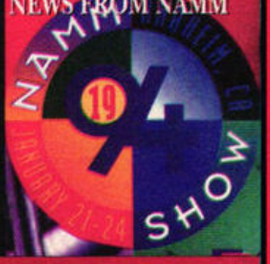


NEWS FROM NAMM



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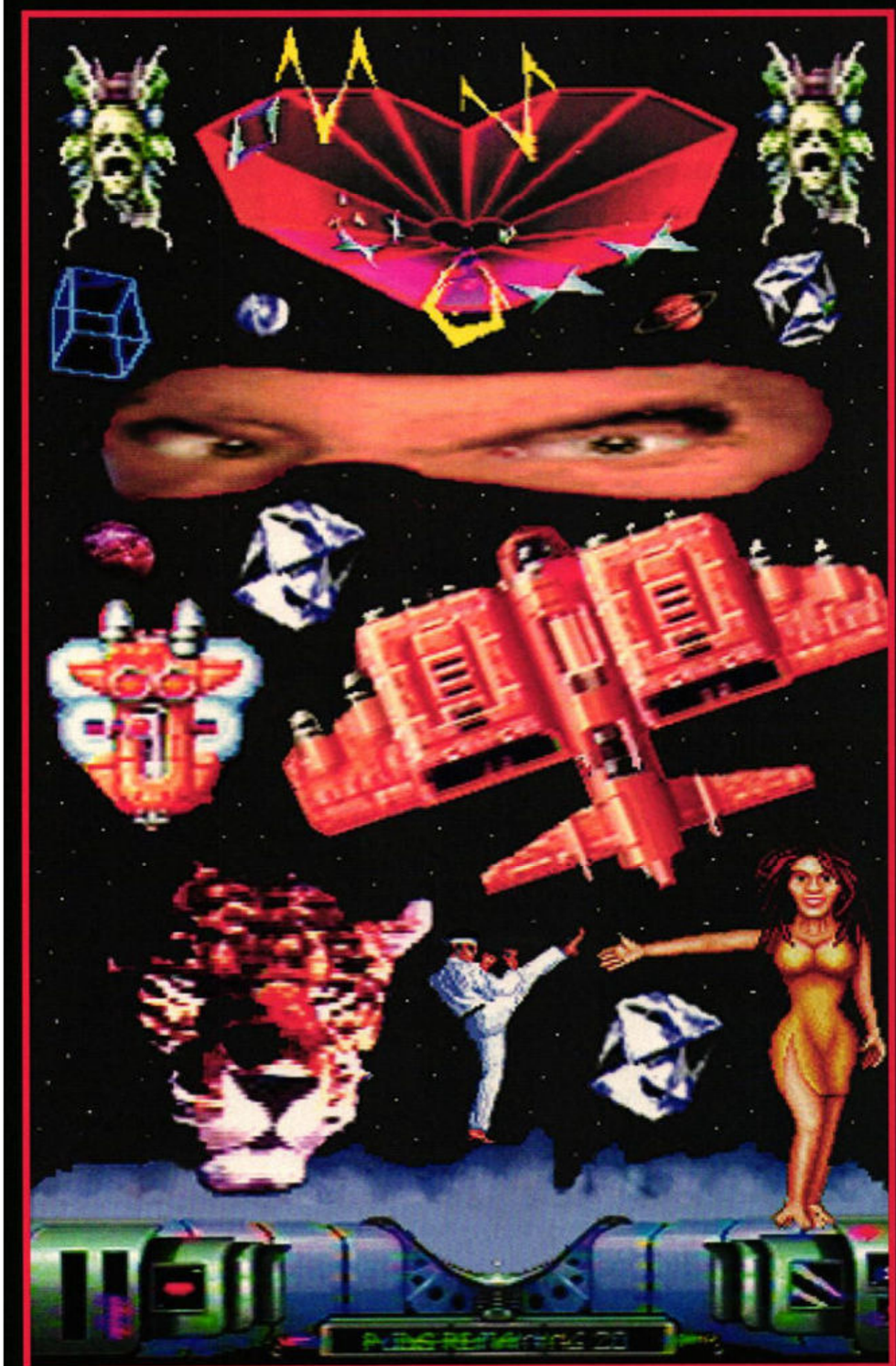
JAGUAR™



48 NEWS
- The latest on the Jaguar's CD ROM attachment.
- What are the latest games you can expect for the Jaguar?

52 REVIEW: EVOLUTION DINO DUDES
Help the dudes on their way through evolution in this puzzle game.

56 PREVIEW: TEMPEST 2000
Can the Jaguar do justice to this classic arcade game?

59 PRESENTING: JEFF MINTER
Author of the game *Electronic Gaming Monthly* voted the best of the CES.

JAGUAR REVIEWS

To ensure our Jaguar reviews accurately reflect the specific abilities of the machine, we've devised a rating system so you can easily see how good a game is.

GAME NAME

£Price ■ Publisher ■ ☎ Phone number

GRAPHICS ●●
Graphics rated out of a maximum of five

SOUND ●●●
Sound rated out of a maximum of five

CAPABILITY ●●●
Does the game use Jaguar's capabilities?

GAMEPLAY ●●●●●
How does it play?

***STF* RATING** 90%

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CD-ROM UNIT

Jaguar's CD-ROM drive, originally intended for release at January's CES in Las Vegas, has been put on hold while Atari concentrate on marketing the Jaguar.

ST FORMAT understands that Atari have produced several working pre-production units which are currently in the hands of games developers. However, there are still some details to be sorted out regarding the exact specification of the unit, and the operating system which is being coded by Jeff Minter. "I wasn't distraught about the CD unit not showing up at CES," Darryl Still of Atari UK told *ST FORMAT*.

● The Jaguar CD-ROM unit, seen here in an early stage of development with a strange pink creature attached. Blimey.

It seems that Atari are still shell-shocked from the huge press and consumer interest in the Jaguar and they want a period of quiet for a while so they can concentrate on getting the machine out into the shops. "Our message is very clear," Darryl explains. "We're concentrating on a £199 cartridge-based system, on which you can play great games without having a CD add-on."

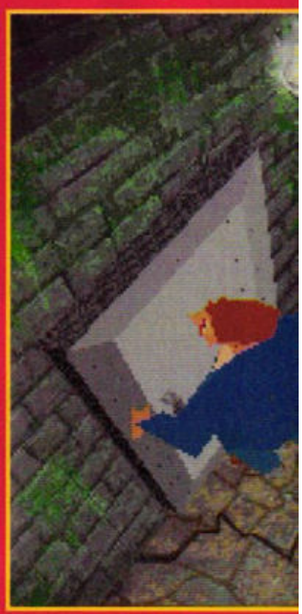
"I wasn't distraught about the CD unit not showing up at CES"
Darryl Still, Atari UK

He believes that the key to CD success is to have sold a couple of hundred thousand Jaguars before releasing the CD unit, so that interest in the platform continues to be high, and they can actually ship them in a decent quantity.

"I'm not totally sure how the UK roll-out of the CD unit is going to work. It all really depends on how it's perceived in the States. If they make 100,000 units and only sell 50,000, then the UK should be flooded with them shortly after the Jaguar's release. However, if they sell them all, then the UK is going to have to wait a bit longer for it. We want to concentrate on the cartridge-based machine first, so the CD unit's secondary. at the moment."

This seems like a pretty sensible decision, since the Jaguar has sold itself so far – Atari haven't needed to advertise yet – so if they announced the CD drive now, people would be clamouring for that too. And, of course, no CD-based games are ready yet, although several are in development. Quite rightly, Atari pointed out that not many games on other CD formats have been really stunning so far, so the last word goes to Darryl again: "Hopefully the first really great CD game will be on the Jaguar, out at the end of the year."

HEY, IT'S



● *Alone In The Dark* is an adventure which takes 3D vector graphics...

CREATURE COMFORTS?

● The raytraced beauty of *Creature Shock* – seen here on the PC...

Argonaut Software, creators of the superb *Starglider* series and the ill-fated *Birds of Prey* on the ST, are to make their Jaguar debut with the release of their CD-based game *Creature Shock*.

The six-part "interactive movie," as Argonaut put it, tells the story of a visitation by a race of extra-terrestrials. As the story develops, it becomes apparent that the beings belong to an ancient alien intelligence, which may have been responsible for the development of part of our galaxy – including our solar system. Creepy, eh?

● ...is coming soon to the Jag. Could this be the first truly interactive CD-based adventure?

The aliens have returned to earth to evaluate their work, and to decide whether to let the human race continue to develop, or to "cash in" the species and begin again. Depending on how you play the game, of course, decides the fate of the humans.

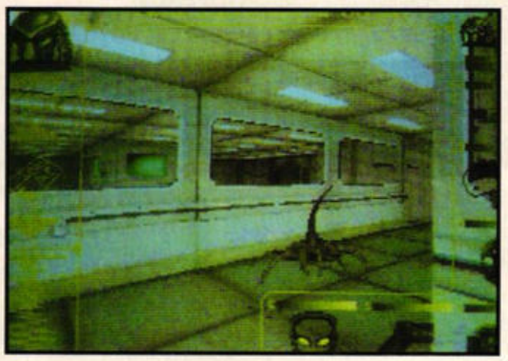
Creature Shock is to be CD-only, but sadly Argonaut hadn't yet received a CD development kit at the time of writing. When they get one, which according to Atari should be "quite soon," they can start work on the game, and we can expect to see *Creature Shock* about six months later.

Argonaut told *ST FORMAT*: "We feel really good about the Jaguar, and we'd certainly like to give it a bit of a leg-up. It all rests on whether the machine's sell-through is what Atari say it is, and whether it is destined to succeed."

RUMOURS...

As we went to press, *ST FORMAT* noticed an interesting conversation on the Compuserve network.

Someone going by the name of Jaguar Jim suggested to John Skruch of Atari that the release of *Aliens vs Predator* on the Jag may be delayed to coincide with the release of *Alien 4*.



● Alright, we know you've seen this before. We're getting the latest *Alien vs Predator* this month, so next issue = brilliant pictures and in-depth preview.

Nonsense, we thought, Atari wouldn't make us wait months for a game once it's complete. However, Mr Skruch would neither confirm nor deny the suggestion. Atari's UK office were rather more positive, but still non-committal: "*AvP* is a very important game for us," Darryl Still told us, "and we're looking to get it out as quickly as possible after it's completed."

We rang 20th Century Fox, the makers of the original *Alien* movie and the recent *Alien 3*, and asked them about the next film instalment. Not could they confirm or deny the production of the movie. Coincidence? Some of the story of *Alien 4* has already been leaked. In true Hollywood fashion, it seems that Warrant Officer Ripley is meant to have "dreamed" *Alien 3*. What next? Maybe that the Jaguar is just a virtual reality...

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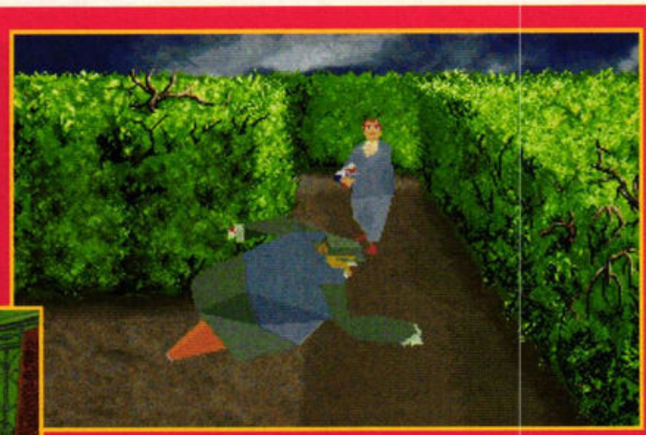
PUT ON HOLD

ALONE IN THE DARK!

...of the type seen in *Robocop 3*, and uses them to create a stunning scenario set in a haunted mansion. The backgrounds are bitmapped – so each room looks highly realistic...

This is *AITD* on the PC – we should get an even better game on the Jaguar. Expect to see it released sometime in the middle of 1994 from Infogrames.

A huge game with over 100 rooms, *AITD's* bigger than most graphic adventures.



...and all the characters are made from thousands of vectors which move amazingly well.

AND THERE'S MORE

Other Jaguar CD-ROM games which are confirmed as "in the pipeline"...

Battle Chess	Interplay
Creature Shock	Argonaut/Virgin
Dracula the Undead	
Evidence	Microïds
Return to Zork	Activision
Space Pirates	Atari

STAR GAZING

Along with *Tempest* and *Battlezone*, Atari are giving another of their old classics a breath of fresh air, by developing *Star Raiders 2000*.

Around in the early '80s, *Star Raiders* made it to the home market on the Atari 800 home computer, a conversion which rates among the classic games of the time. Indeed, it could be seen as a forerunner to another classic, *Elite*. In *Star Raiders*, you pilot a starship in first-person 3D, using a hyperspace to zip between planets in a galaxy. Ring any bells? However, the aim of the game was certainly different – get rid of as many starbases as you could find, because they were intent on killing your race.

As with *Tempest 2000* (see the preview on page 56), you can guarantee that the game is brought bang up to date with technology when it is released later this year. Watch out for more information as we get it.

DOUBLE DRAGON

Double Dragon, the game responsible for modern beat-'em-ups such as *Street Fighter 2* and *Mortal Kombat*, is to reach the Jaguar in its fourth incarnation.

Double Dragon 4 is being developed by US company Tradewest, who also created *Double Dragon 3* and the recent *Battletoads vs Double Dragon* on the Super Nintendo. The original game was set in warehouse and docks-style scenarios, with you and a friend controlling two fighters beating hell out of the enemies in your way. The exact features of *Dragon 4* are still sketchy as it hasn't been released as a coin-op yet. Watch out for more info in the next couple of months.

This bizarre pole-vaulting trick comes from *Battletoads vs Double Dragon* on the SNES. The guy in the air is actually using his stick to pierce his enemy's head, and to push him through the floor, apparently. Lovely.

Some of the graphics on this SNES version are excellent, which gives us an idea of what they can do with the Jaguar. Should be one to watch out for.

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NEW JAGUAR DEVELOPMENT SYSTEM RELEASED

• The SNASM cross-assembler package, used to create ST games by such greats as MicroProse and Domark, is now available in its second incarnation for the producton of Jaguar games. Hooray!

A complete PC based development system for the Jaguar isnow available, enabling everything from standard Jaguar cartridges to complete CD-ROM titles to be developed on a single platform.

This is very good news since many software development houses work around PC based systems rather than the TT-based system Atari have been trying to encourage programmers to use to develop Jaguar games.

SNASM2 from Cross Products is a cross assembler – that means you can use it to write assembly code and develop software for computers and consoles having nothing to do with the PC. *SNASM2* is based on the original version of *SNASM* used to develop software for the SNES and Mega Drive, the new version is much more powerful and enables code to be written for the multiple processors found in the Jaguar and other consoles.

> **"The *SNASM2* system for the Jaguar indicates Atari's presence as a major player in the games market"**
> **Bill Rehbock, Atari US**

SNASM2 releases all the PC's memory for storing code and enables the hard drive to act as up to 32MBytes of virtual memory if you are working on a large project. Another useful innovation is the simple system of building CD-ROM images in memory so you can transfer them to the final CD-ROM master disc.

Bill Rehbock at Atari US said "We are delighted that Jaguar developers can now use the best possible development tool available to produce their games; the *SNASM2* system for the Jaguar indicates Atari's presence as a major player in the games market."

You can contact Cross Products Ltd on ☎ 0532 429814 for details of price and availability.

WHAT'S IT GOT?

SNASM 2 is the perfect development environment for the Jaguar, just take a look at some of its features

- Uses all available memory
- Uses up to 32MBytes of virtual memory
- Mix C and assembler in a program
- Built-in linker
- Source code can include libraries
- Easy ROM image generation
- Enables host PC to act as an emulated CD-ROM drive
- Fast system for building CD-ROM images
- Capable of generating code for multiple processors

EXPECTED RELEASE DATES

GAME	PUBLISHER	FORMAT
Available now		
Crescent Galaxy	Atari	Cart
Cybermorph	Attention To Detail	Cart
Evolution Dino Dudes	Imagitec (Atari)	Cart
Raiden	Imagitec (Atari)	Cart
March '94		
Checkered Flag 2	Rebellion (Atari)	Cart
Club Drive	Atari	Cart
Tempest 2000	Jeff Minter (Atari)	Cart
Tiny Toon Adventures	Atari	Cart
April '94		
Alien vs Predator	Rebellion (Atari)	Cart
Kasumi Ninja	Handmade Software	Cart
May '94		
Battle Wheels	Beyond Games	Cart
Casino Royale	Telegames	Cart
Jukebox	All Systems Go	Cart
Kick Off 2/World Cup	Anco	Cart
Zozziorx	Retour 2048	Cart
June '94		
Double Dragon	Tradewest	Cart
Mechtiles	Beyond Games	Cart
July '94		
Battle Chess	Interplay	CD
Brutal Sports Football	Millennium/Telegames	Cart
Indiana Jags	Retour 2048	Cart
Mortal Kombat	Iguana	Cart
August '94		
Doom: Evil Unleashed	ID Software	Cart
Flashback	US Gold	Cart
September '94		
Another World	Interplay	Cart
Soccer Kid	Krisalis	Cart
October '94		
Arena Football	V-Real	Cart
Navy Commando	Microïds	Cart
Pinball Fantasies	21st Century	Cart
November '94		
Horrorscope	V-Real	Cart
Jimmy Connors' Pro Tennis	UBI Soft	Cart
Power Slide	Elite	Cart
Zool 2	Gremlin Graphics	Cart
December '94		
Gunship 2000	MicroProse	Cart
Sometime		
NOTE: Most of the following games are billed for release later this year		
Aero the Acrobat	Sunsoft	Cart
Al Michaels' Hard Ball	Accolade	Cart
Alone in the Dark	Infogrames	CD
American Football	Park Place Productions	Cart
Batman (the Comic)	Atari	Cart
Battlemorph (Cybermorph 2)	Attention To Detail	Cart
Battlewheels	Beyond Games Inc	Cart
Battlezone 2000	Atari	Cart
Blue Lightning	Attention To Detail	Cart
Brett Hull Hockey	Accolade	Cart
Bubsy	Accolade	Cart
Car Wars	Midnite Software	Cart
Charles Barkley Baseball	Accolade	Cart
Commando	Microïds	Cart
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Dungeon Depths	Midnite Software	Cart
European Soccer Challenge	Telegames	Cart
Evidence	Microïds	CD
Hosenose and Booger	All Systems Go	Cart
Jack Nicklaus Golf	Accolade	Cart
Phong 2000	Phalanx	Cart
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Robinson's Requiem	Silmarils	Cart
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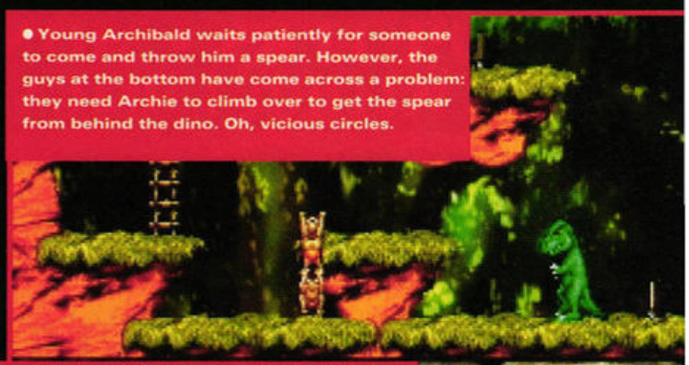
EVOLUTION

In a *Quantum Leap*-style scenario, guide a tribe of your ancestors through their evolutionary period with the Jag's first puzzle game



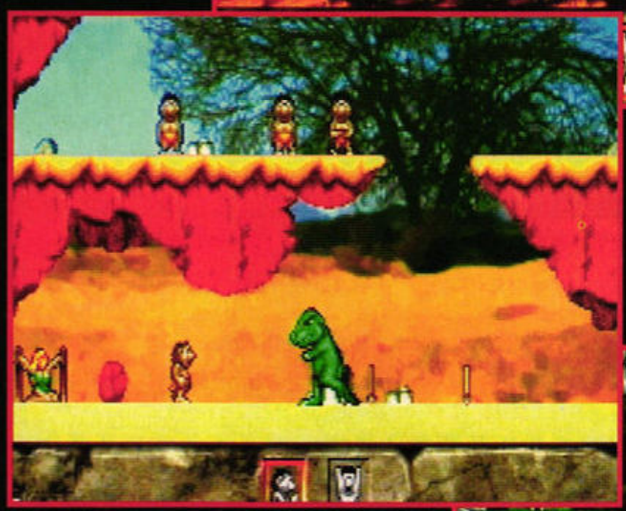
● Young Archibald waits patiently for someone to come and throw him a spear. However, the guys at the bottom have come across a problem: they need Archie to climb over to get the spear from behind the dino. Oh, vicious circles.

Many moons ago there were lemmings. These tiny, green-haired chaps formed the basis of a computer game that was different to all the others – a puzzle game which involved using a number of these lemmings to team up and get through obstacle-filled levels. *Lemmings*, as we know, went on to be one of the most successful games in history.

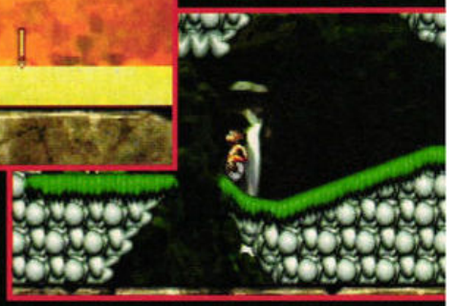
It was inevitable, then, that other companies would see the potential in creating a game involving tiny characters with different attributes. One company in particular, Mirage, thought that as lemmings had already been used they would replace them with cavemen. *Humans* was born.

The humans were fewer in number than the lemmings, but even with the help of neural networks (a learning intelligence) these guys behaved in a very similar way – tell them to walk off a cliff, and off they go, no questions asked. Hmmm. However, they didn't tend to get killed quite as often as lemmings – but you didn't get the same feeling of sorrow and loss when they bit the dust.

Anyway, to the point. The humans evolved slightly, and the sequel, *Evolution: Dino Dudes (EDD)*, is the game you're looking at now. Although the humans (who are now called dudes) themselves are basically the same, they do have further abilities such as making fire, and now a witch doctor is included in their group.



● Thomas, again, protects a young female dude from the clutches of a rampaging dino. If only he had a spear, he could let the beast have it between the eyes – but the weapons are just out of reach.



● Joe's son finally gets the hang of the wheel – and attempts to make it over the conveniently-placed slope. Next stop 17 buses, perhaps.

● The *Dino Dudes* were programmed by Imagitec, the makers of *Raiden* which we reviewed last issue *STFORMAT*. Just thought you'd like to know.

● The Siamese dudes wait for Cedric the Bold to return with a rope. Sadly they have trouble vaulting, mainly because they can't decide which foot to put forward first.

Human intuition

80 levels await you and your small tribe of lemm... er, dudes. The basic idea is to negotiate your way through each level, solving puzzles and overcoming obstacles as you go. Each dude can do the same things – he can manipulate spears, rope and fire as well as the next dude.

The first problem is to discover a spear somewhere on the level – quite a simple puzzle, but introducing you at an early stage some of the features of the dudes. The spear is positioned on a high rocky outcrop, away from any ladders or other means of climbing. To get up there you need to build a dude ladder – position four or five dudes, standing on each others' shoulders, and climb another up the tower to reach the spear. The spear opens up a whole new world of possibilities for your little dudes. Each one, instead of just being able to walk or balance on another's shoulders, can now use the spear to vault over small gaps in the rock. As you would expect he can also throw the spear, which can either be passive (throwing back to your mate so that he can use it), or aggressive (lobbing it at a rival caveman or dinosaur). With seemingly no end to his new talents he can also brandish the spear, which apparently keeps hungry dinosaurs at bay although it doesn't seem to work for us.

> **"The basic idea is to negotiate your way through each level, solving puzzles and overcoming obstacles as you go"**

Other items waiting to be used on later levels include a wheel, which your dudes can push along or stand on.

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DINO DUDES

Standing on it gives added mobility: pushing left or right pedals your dude around, and if he's going down a hill then he picks up lots of speed – just right for jumping over large ravines. Rope is in limited quantities as well, and it's normally hidden away. Quite often you agonise for hours over a puzzle which could easily be solved with a length of rope, before spotting it out of the corner of your eye.

Perhaps the most interesting and exciting discovery by your dudes is fire. A burning stick, lying nonchalantly somewhere in a level, is a sure-fire (forgive the pun) way of creating fun and games. It won't blow out, so you can throw it and brandish it to your heart's content. Brandishing it near a bush (a fiendish obstacle) causes a fire, and a small charred twig appears where the bush once stood. Although we haven't found a real use for it yet, this arson also applies to other dudes. Wave your burning branch in the direction of a friend, and up he goes like tinder. Strange.

"As your dudes progress through the 80 levels, they are progressing through the stages of evolution"

Alien intelligence

So, as your dudes progress through the 80 levels, they are progressing through the stages of evolution. Discovering things like wheels and fire are all part of evolving (albeit slightly more simplistically than in real life), and as you go on solving puzzles, so the next puzzle gets more difficult. Given that more intelligence is necessary anyway to evolve more quickly than the dinosaurs, this fits in, again simplistically, with the evolutionary chain.

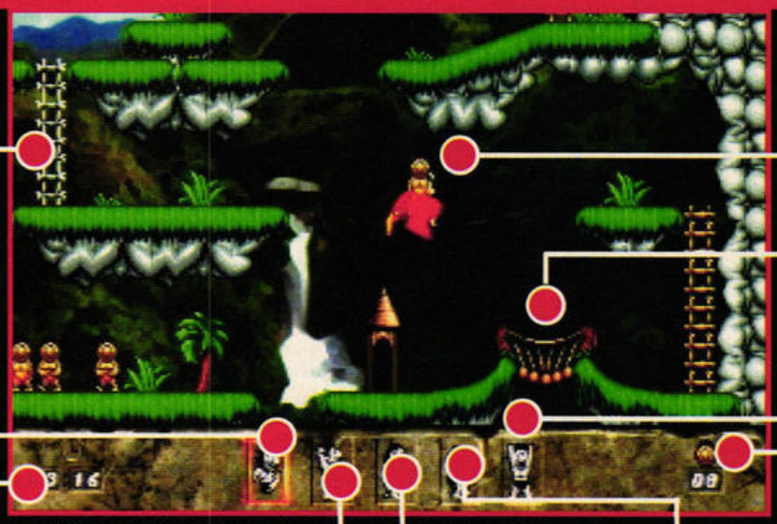
The major obstacles to overcome are stacks of stone bricks, which can't be climbed. Try poking them with your spear or your fire-stick, vaulting

● Thomas the Brave, dude legend, tries the vaulting trick which that lot over there were on about. His pals line up for their go – with Orangey last, of course (so-called because of his smart new Y-fronts).

● This grab's from the demonstration, we couldn't get this far. The action icons show a flaming torch, a spear, a rope, a "ladder man," and some sort of wheel. The nature of the wheel dictates that it doesn't need an icon, so if anybody knows what this icon does, send us a postcard.

● Warning: if you have a UK (PAL) Jaguar, as opposed to a US import, you may experience problems when running an imported copy of *Dino Dudes*. The UK release should sort it out.

SNEAKS AND LADDERS



LADDER
● Well, it's a ladder, really. You climb up it, and down it too.

JUMPING DUDE
● Make your caveman use his pole to jump across small ravines.

TIME REMAINING
● You only get a short time to complete each level – so hurry up!

THROWING DUDE
● Throw your spear – either to help your mate or kill him.

BRANDISHING DUDE
● Hold your spear in a threatening manner, to scare away dinos.

ER, PUTTING DOWN DUDE
● Holding a spear or rock that you no longer need? Then, er, drop it.

PTERODACTYL
● A big, strong flying thing, capable of carrying a dude across a gap.

BRIDGE
● A great innovation which collapses after you've used it once.

LADDER DUDE
● Braces a dude to make a ladder.

DUDES REMAINING
● Number of available replacement dudes.

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● Early attempts at friendly east-west relationships falter when Billy decides he doesn't like his neighbour's face. So he puts a spear through it. Urgh.

them, throwing your spear at them, rolling a wheel into them – nothing. Again, many hours of despairing follows, before reading the manual reveals a number of switches dotted around. The switches are actually depressions in the ground which, when a heavy object is placed in them, makes the stone wall disappear.

Hang on a mo, though. On a deeper plane, these switches which make walls disappear are obviously the sign of a superior intelligence. After all, the dino dudes are just learning about fire and wheels, and yet here they are grasping the concept of matter diffusion. An interesting touch would have been to include the odd UFO or something, to link up this bizarre technological jump with what's happening to your dudes. Maybe in the sequel, eh?

"Graphically, the game is pretty good, with a decent full-colour backdrop behind each level and some neat parallax scrolling"

Be witched

Right then, the witch doctor. This is a dude with a mask, who has obviously made some kind of pact with the devil, or something, and now knows significantly more than Paul Daniels about magic. Witchy (as he shall be known) can do lots of tricks, as long as they involve producing an object out of thin air.

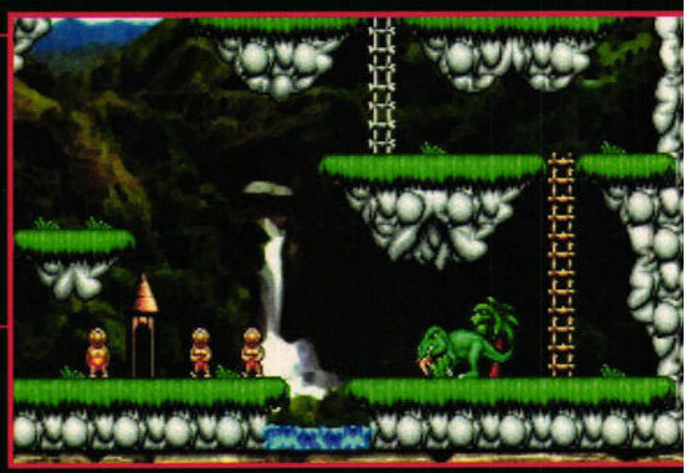
You can bet your life that, if Witchy is around, another object is necessary. To make him conjure one up, he requires a single dude as a sacrifice. Position the dude next to him, click on the icon, and the dude burns up, replaced with the required object.

The most excellent aspect of *EDD* is that there are so many levels. To get through them all would take you many hours of play, in a very similar way to the hook of *Lemmings*, where you just can't put it down without getting just that little bit further. Graphically, the game is pretty good, with a decent full-colour backdrop behind each level and some neat parallax scrolling. Everything else is a direct port from the Falcon version of the game, which is a shame because the dudes could do with a few more animation frames. The sound is pretty typical, a bibbity-boppity tune and a few sound effects, but while some more could have been done to improve this, it does create a reasonable atmosphere.

The only reservation, really, is if this game is what Jaguar owners want. Of course, it's good for game platforms to have a broad range of game styles. However, in the Jaguar's case what we all want to see are games which do something different, and, quite honestly, if you saw this game running on an STE you might not look twice.

Evolution: Dino Dudes is a good puzzle game, but if you want a lively, graphical and sonic treat that you can show off to your friends then save your money for the next few releases.

ANDY NUTTALL



● Dino demonstrates he means business by eating the first of the 12 dudes. Strangely, the others remain unconcerned – a fact which worries the marauding monster.

● Thanks to Console Concepts of Newcastle Under Lyme (☎ 0782 712759) for the loan of the cart. Well, we can't buy everything, you know.

● Level 14. Chased by a hungry dino, Joe dude discovers a wheel – and then promptly scoots off the nearest cliff. Not so intelligent, after all.

EVOLUTION: DINO DUDES

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GRAPHICS ●●●●
Decent true colour backgrounds, parallax scrolling.

SOUND ●●●
Dinky tunes, reasonable sound effects.

CAPABILITY ●●
With *Dudes*, the Jag doesn't even sweat.

GAMEPLAY ●●●
The control isn't really suited to a joypad.

STF RATING 78%

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PREVIEW

This game's already been awarded "Best Game of the Show" at the Las Vegas CES, so it had to be good, didn't it? Jeff Minter's first Jag creation is ready, and Andy Nuttall went to sunny Wales to see what all the fuss was about

Outrageous! Although he's always been known for producing splendid software, Jeff Minter's finest hour is yet to come. The man responsible for *Gridrunner* on the Vic-20, *Revenge of the Mutant Camels* on the C64, and *Colourspace*, *Trip-a-Tron* and *Llamatron* on the ST, recently completed the coding on his premier work for the Atari Jaguar. Stand back *Cybermorph*, and stand well back *Crescent Galaxy*, *Tempest 2000* is here. And it's no longer just a simple arcade game.

You see, *Tempest* was a coin-op game produced by Atari in the early '80s. Created entirely using simple vector graphics (coloured lines, basically) *Tempest* displayed a range of three-dimensional "webs" on the screen, along which travelled nasties with names like Fuse Balls and Pulses. Your spaceship, also made from vectors, moved clockwise or anti-clockwise around the top of each web, and firepower was directed down the web in the direction of the nasties. You known the phrase "Sometimes the simplest ideas make the best games?" That was created for *Tempest*. It's possibly the least complex game of all, barring perhaps *Pong*, but even ten years later people regard it as one of the best because it's so playable. Jeff Minter's had one of the coin-ops in his house for a number of years, so he knows all about it – and when someone in Atari suggested

● Jeff does like his superlatives. Assuming you're doing reasonably well, words such as these fly towards you at an alarming rate – but, interestingly, they never seem to interfere with play.

● The "Excellent" signifies your prowess at shooting enemies. It's accompanied by a subsonic, booming voice – in exactly the same style as the *Mortal Kombat 2* coin-op. Go and have a listen to see what we mean.

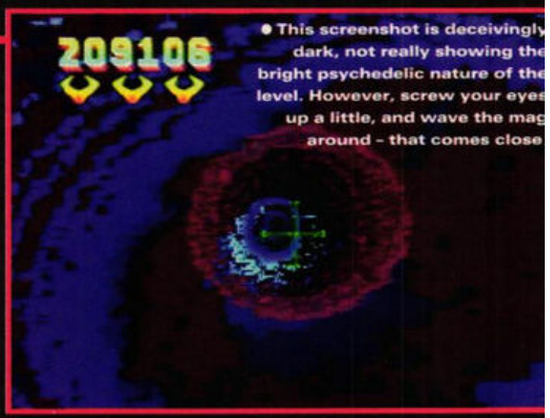
> **"*Tempest 2000* is here. And it's no longer just a simple arcade game"**

A NOSTALGIC VIEW...

To complement the out-and-out mayhem of Tempest 2000, Jeff has kindly provided "mellowing out" stages. These are disguised quite heavily as bonus levels, but their main purpose is to provide a break from the main action. Probably. Anyway, there are three different types, here's a quick run-down:

Flying the bacon

So-called because some chap at Atari thought it looked like you were flying over a few rashers of sliced pig, Flying the Bacon actually features a texture map made from a bitmap of Jupiter's surface. Your ship constantly moves forward, and the idea is to fly through the differently-coloured rings. Hit an arrow symbol, and you fly through the bacon to the other side, and fly the rings there.



● This screenshot is deceivingly dark, not really showing the bright psychedelic nature of the level. However, screw your eyes up a little, and wave the mag around – that comes close

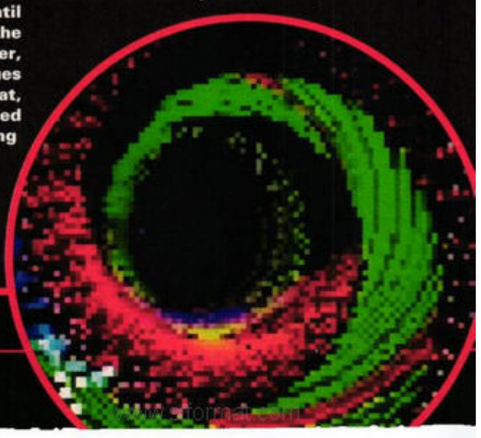
● The bonus screens move very slowly at first, so it's not difficult to pick up some serious points at this stage. It does get harder, but slowly – so you do get a chance to calm down.

Meltdown

If there was an award for the most bizarre-looking graphics, Meltdown would win it. Using an effect which Jeff calls Video Feedback, where a screen is manipulated and the result is fed back through the manipulator. Sounds weird? You wait until you see the results – all the colours melt into each other, creating new shades and hues as you travel. This is great, except when you're supposed to be concentrating on flying through hoops...

Particle city

Given Jeff Minter's instruction "Follow the green path," you do exactly that. After all, he is the man in the know. The green path spirals and meanders down the inside of the "particle tube," which isn't



Tempest 2000

● Even the introduction screen is entertaining. A multicoloured texture-mapped background waves like a flag as you select your options. Ludicrous, yes. OTT, yes. Excellent, yes.

he converted it to the Jaguar, he jumped at it eagerly.

"When I first went to a Jaguar Dev-Con," Jeff told us, "they had a list of the games they wanted doing. I saw *Tempest*, and I liked playing it, and because I'd had so much fun doing *Llamatron* I thought I might do the same kind of thing with *Tempest*."

Psychedelia overload

If you've ever played a Jeff Minter game before, you should already know about his taste for the, ah, psychedelic. Indeed, *Colourspace* and *Trip-a-Tron* were ST programs designed to simulate some of the effects of an LSD-type "trip." Dubbed Light Synthesizers by enthusiasts, the two programs showed off the potential for displaying swirls and blends of colour using an ST. Colours and designs changed depending on external stimulus, such as sound or music, or even movements of a joystick.

● Your smart bomb weapon (one per level) sparks off all manner of mayhem on the web. Anything near the top gets zapped by a million volts – you can almost smell the singeing.

"The whole game is so techno," as Jeff put it. "You could put it on a wall in a rave"

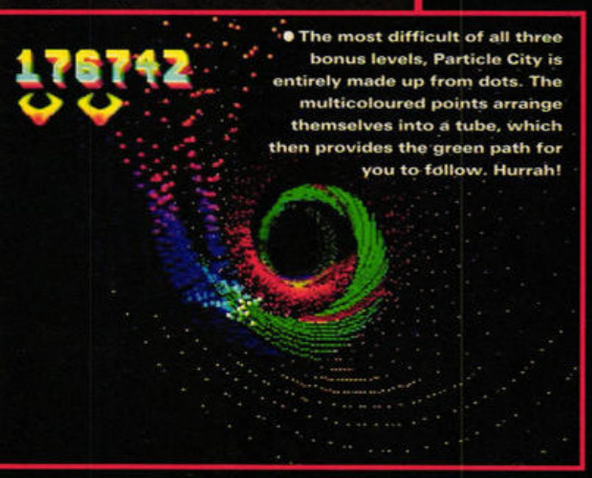
Jeff again: "I had definite ideas of which way I wanted it to go. I wanted to give it a very distinctive style, because *Tempest* always looked so different from other games. I particularly wanted to show off the Jaguar, doing loads of mad particle fields and Gouraud shading and stuff, and not just do it in a mundane way – do it so that it stands out, you know? I mean, people look at this and go 'Whoa, I've never seen anything quite like this before.'"

So, instead of simply converting *Tempest* to the Jaguar, Minter has done things with it that really only he could do, using his knowledge of gameplay and the principles behind *Trip-a-Tron*. The original static line-drawn webs have been replaced by full-colour Gouraud-shaded models, which drift around the screen to keep your ship central.

Jeff aimed to keep the game as "in your face" as possible, with different things happening all the time, and no let-up in the gameplay. The nasties just

really the name for it, but we think it sounds good. Hit right or left to move your ship clockwise or anticlockwise, to stay on the track.

If your ship misses, you're given a split second to get it back on. The spiralling gets tighter and tighter as you go along, so keeping on the track can get very difficult. If you lose, then it's back to the game again.



● The most difficult of all three bonus levels, Particle City is entirely made up from dots. The multicoloured points arrange themselves into a tube, which then provides the green path for you to follow. Hurrah!

● The cube at the bottom is an AI (Artificially Intelligent) Droid – a pickup which gives you the added firepower of a computer-controlled ally. You can choose to switch this on constantly if you wish.

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keep on coming – all the originals plus some new ones added to beef it up.

Power-ups, when collected, display themselves in huge multi-coloured characters across the web before exploding into thousands of tiny star-points or particles. Similarly, the animated and Gouraud-shaded enemies shatter into tiny pieces when shot, showing off many different types – and shapes – of explosion which create psychedelic effects of their own.

"The whole game is so techno," as Jeff put it. "You could put it on a wall in a rave. Actually, we're going to do that. When I go out with the Virtual Light Company we're going to take Jags with us. I've got various light synthesizers which run on the Jaguar, and we're going to use that and also display *Tempest*." In fact, you could easily imagine every rave employing the skill of *Tempest 2000* to add elements of interactivity to their activities.

● Plenty of power-ups give you a huge amount of fire-power, which only lasts for a single level. Each level provides a Particle Laser almost immediately, so you should have no trouble killing the baddies.

● The hot lips provide quite a difficult challenge, because the web's small and the nasties don't have to travel so far to get you. Colourful, eh?

Ground shaking

A range of sampled voices calmly speak to you throughout, informing you of your progress – "outstanding," "excellent," – giving the whole caboodle a coin-op feel. And the music – well and truly composed by Imagitec Software, they of *Raiden* and *Dino Dudes* infamy – is possibly the most fitting ever written for a video game.

The main theme is a heavy techno track, bordering on rave, with superb synth voices and samples blasting through your TV – or, for a rare experience, through your hi-fi. In Jeff's house, even through a relatively small stereo (cranked up, admittedly), the floors and walls shake with exhilarating subsonic bass samples. Use headphones for fear of upsetting the neighbours – unless you live in rural Wales, of course, where the only neighbours are two sheep called Flossie and Mollie.

Imagitec really have got the sounds spot-on. "I sent them a video and a long letter, telling them what the game looks like and the kind of feels that I wanted – especially the contrast between the bonus levels and the main wave. They did a very good job. In fact, they gave me 13 tunes, and I could only use seven, so Atari are going to release the game with a CD of the soundtrack."

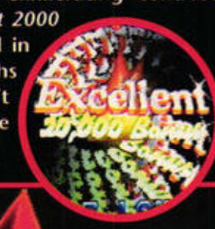
"The main theme is a heavy techno track, bordering on rave, with superb synth voices and samples blasting through your TV experience"

And then, just when your eyeballs are screaming at you because of the colour and speed overload, and your throat is hoarse from screaming "This is outrageous!" to the nearest person who's listening, a bonus level appears which is designed to calm you down.

The three bonus levels are pretty simple, requiring small movements from the joypad to guide a light particle cloud either through a series of rings or along a spiralling random path. As you play, a mellow dub-bass melody exudes a calming effect – again, top marks to Imagitec for the music.

The plan is to keep you going for as long as possible before sticking you back in the full-on action of the main game – something which comes as quite a shock after the mellow bonus levels, forming an amazing and exhilerating contrast. Check out *Tempest 2000* when it's released in a couple of months – you really haven't lived until you've see it. ***stf***

● The colours and concepts which *Tempest 2000* is built on really confound - that's the idea. The main reason why Jeff Minter likes the Jag so much is because it can display lots of colour.



● *Tempest's* full of interesting shapes - take this cat's head. Strangely, Jeff didn't seem to make the connection until someone pointed it out. It's like looking at clouds, people see different things in different ways.

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presenting...

JEFF MINTER

The psychedelic programmer of *Tempest 2000* speaks to *ST FORMAT* about his life, loves and Jaguar programming...

● Llamasoft's *Trip-a-Tron* was the company's finest psychedelic hour. Using your mouse, you could create stunning swirling patterns of colour, using hundreds of different ST palettes.

● You could even link up several STs for a spot of light-synth jamming. Brilliant!

● In Jeff's games you won't find any references to taboo subjects (well, except for one version of *Llamatron* that wasn't for general release, that is) it's all good, clean, family fun.

● On the ST, Minter's animal frenzy continued with *Revenge of the Mutant Camels*, in which you played, erm, a camel. So revenge could be yours! Hurrah!

● **Jeff started out programming with the Commodore PET in the late '80s. He got the idea to create games when he saw somebody playing a game on a PET, and he asked where the game came from. "He said 'I just typed it in,' and that was the first time I realised that you could actually make games that weren't in a cabinet with a ten pence slot."**

● He began by creating a very simple game with "a blob which could fire in all directions against other blobs, which were the nasties." Sounds to us like *Robotron* before its time. He gave them to his colleagues to play, because: "they were best judges of good games. If they weren't good, they simply wouldn't play them!"

● **Most of Llamasoft games for the ST have been Shareware, a concept which Jeff believes in tremendously. He reckons that ST owners are far and away the best at returning Shareware registration fees, even from all over the world. The Amiga and PC registrations pale into insignificance, apparently. Doesn't that give you a warm glow inside?**

● Jeff's first commercial games were on the Sinclair ZX80. There was a 3D maze game and a dexterity game called *D-Flex*. A version of *Centipede* followed on the ZX81, then a version of *Space Invaders* for dk'Tronics – a firm run by an ex used-car salesman – who ripped Jeff off for a lot of money. The first Llamasoft game, as such, was a version of *Defender* on the Vic-20.

● He's a staunch Jaguar, and Atari, supporter. As far as he's concerned, other platforms pale beside it, and the rumours of future machines he takes with a pinch of salt.

As Jeff says: "SGI Reality Engines cost about half a million quid, so you're not going to be able to buy one next year for 200 bucks," referring to the much-touted Nintendo collaboration with Silicon Graphics. Sega are also developing a "next generation" console, but again Jeff is reserving judgement until he sees it.

● He has no worries about the Jaguar selling well. Not only because of the brilliant graphics and sound capabilities, but also because: "Kids like big numbers. You know how Sega carts are measured in MBits, as opposed to MBytes. So the Jaguar's 64 bits are going to appeal to them. And there's Sega with '16-bit' written on the case – that's going to become an anti-advertisement."

● Jeff has plenty of views regarding the future of technology. He thinks that the next main step with technology should change the way people communicate with each other. "Look at the way people rely so much on first impressions," he says. "Someone could take an instant dislike to you, just because you're a scruffy hippy or something. When you're actually in Cyberspace and you meet somebody, you give them precisely the image you want to give them. You're getting closer to the reality of the real person.

"Look how far flight has come since the Wright Brothers, and then conquering the Moon. The scale of expansion of that technology is nothing compared to this. This is the most significant technology that mankind has ever invented, and it's going through the roof. Something's going to happen – and I love it."

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MARCH 1994
Disk: *F1 demo, children's colouring book; plus five utilities*
Inside: Over 100 ST tips; image processing feature; *Cubase Audio* review; *Goal!* review; 11 Jag pages.

ISSUE 55

FEBRUARY 1994
Disk: *Frontier – Elite 2* demo; *Stomp; Before Dawn, DM* Editor.
Inside: Your ST's future; *AtariWorks; Cybermorph* reviewed. 16 page Jaguar section.

ISSUE 54

JANUARY 1994
Disks: *KCS Omega; Hyperpaint 2; Spherical, Nova.*
Inside: *Frontier: Elite 2* previewed; best buys of 1993; *Vidi ST* and Colorburst scanner reviewed.

ISSUE 53

DECEMBER 1993
Two disks: *Arabesque*, a vector graphics program worth £130 plus a useable demo of *Raystart*. **Inside:** Falcon special plus the index of 1993.

ISSUE 52

NOVEMBER 1993
Two disks: *Wordflair* – a whole program; *Magic Boy* demo; **Inside:** Five DIY upgrades; scanning, digitizing and sampling; footie games.

ISSUE 51

OCTOBER 1993
Disk: *Zool* demo; *Fractal Playtime; STOS* extension
Inside: Games testing; colour printing; high and low end DTP; using fractals in art and music.

ISSUE 50

SEPTEMBER 1993
Disk: *Civilization* demo; *Supercard* database; *Mega Depack; Runes*
Inside: 50 inspiring ideas; Photo CD; 50 techie terms; *Legends of Valour.*

ISSUE 49

AUGUST 1993
Disk: *POV Raytracer* complete program and the *Chaos Engine* demo.
Inside: Discover the power of raytracing, and take a look at MultiTOS.

ISSUE 48

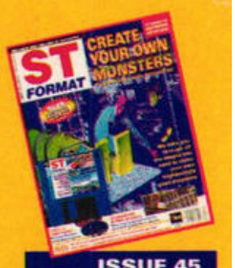
JULY 1993
Disk: *B17* demo, the complete *Prism Paint* and *Composer Two*. **Inside:** Make music on your ST, summer sports, review of Digital Arts' *Vector.*

ISSUE 47

JUNE 1993
Disk: *Legends of Valour* demo, three more games, *DynaRAM, Picture Monitor.* **Inside:** Adventure games, upgrade your TOS, *Xenomorph* review.

ISSUE 46

MAY 1993
Disk: *Biz Accounts* demo, three games; *Kubes, Rayoid,* and *Balls* and two vector fonts. **Inside:** Be productive with your ST, floppy drive roundup.



ISSUE 45

APRIL 1993
Disk: *Nigel Mansell's Grand Prix, No Second Prize* demos, *Protext* dictionary.
Inside: Get into programming, multi-player games, *Protext* masterclass.

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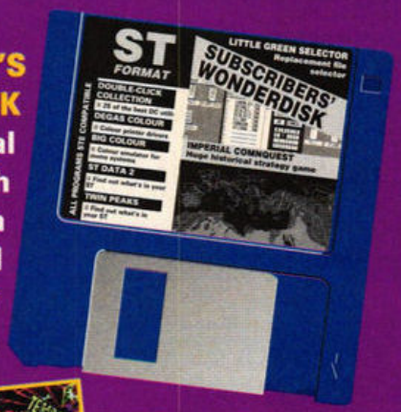

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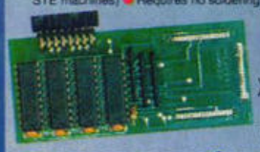

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SCREENPLAY

Along with our usual hints and tips Sensible's latest arrives – hurrah!

STEEL TALONS

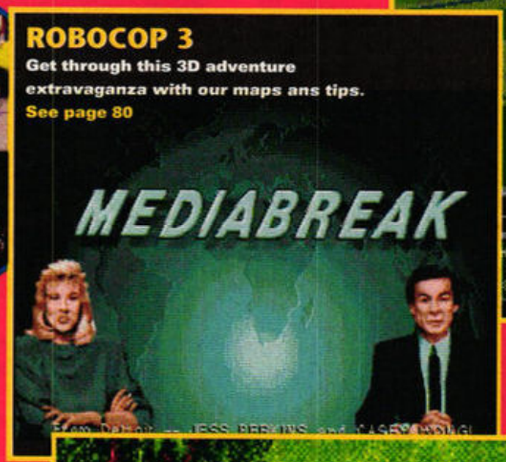
This sound arcade game's transferred to the Falcon - and it's out now! See page 72

ROAD RIOT 4WD

Sexism abounds in our first in-depth look at the Falcon's four-wheel drive buggy sim. See page 74

ROBOCOP 3

Get through this 3D adventure extravaganza with our maps ans tips. See page 80



HELP!

- **LEISURE SUIT LARRY** and **ROBOCOP 3** – complete solutions. From page 78
- **ISHAR 2** – a helping hand for this huge adventure. Page 77
- **ZOOL** – the new and updated real and proper cheat. See page 77
- ***PLUS!*** Captain Blunder answers all your gaming queries from page 77

CANNON FODDER

Discover whether war really is such fun in this stonking game from Sensible Software. See page 66

LEISURE SUIT LARRY

Complete this, er, adult adventure with this month's complete solution. See page 78

CHARTS

This month	Last month	Game	Publisher	Price	*STF* Rating
1	(1)	Frontier: Elite 2	Gametek	£29.99	91%
2	(6)	Zool	Gremlin	£25.99	89%
3	(2)	Lemmings 2	Psygnosis	£29.99	96%
4	(-)	Championship Manager '93	Domark	£29.99	80%
5	(4)	Sensible Soccer 92/93	Renegade/Mindscape	£25.99	91%
6	(5)	Colossus Chess X	CDS	£7.99	N/A
7	(8)	The Chaos Engine	Renegade/Mindscape	£25.99	94%
8	(3)	Streetfighter 2	Kixx XL	£14.99	91%
9	(9)	Striker	GBH	£9.99	79%
10	(7)	Secret of Monkey Island	Kixx XL	£16.99	90%

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CANNON

Even as early as Level Two, your men are given high-powered weapons such as grenades and rockets. Blowing up enemy buildings is very satisfying - the explosions are great.

Sensible Software have a great reputation for ST games. So have Virgin, but their last two games have been abysmal. Can a collaboration come up with the goods?

What is it about human nature that makes war such a touchy subject? We have always had war: people have always died for their leader or their country, and they are quite rightly looked upon as brave soldiers who gave up their lives in the name of peace.

However, other races and species have their own type of war too. OK, so antelopes and wildebeest don't use bombs and bullets to see off their enemies, but the principle is the same – they fight to keep their territory and their pride. There is one form of war or another in all aspects of nature.

A skidoo in action, yesterday. Mission Seven requires you to make skidoo jumps over several hedges, which is a difficult task in itself. When you're faced with rocket launchers, it's even harder.

War. Huuurgh!

Cannon Fodder is a game about war. Controlling a number of conscripts from their enrolment through to their death (or glory), your men go to war with the enemy. Quite often they get killed, but equally they have every chance of survival – they are, after all, armed to the teeth. As you may guess, their fate is entirely up to your decisions and your dexterity with a mouse.

Each of your soldiers has a name, each acts as an individual, and as he moves through the game with you he becomes an integral and important member of your team. You don't want him to die. However, at some point he might, and you know that he bit the dust as a direct consequence of your actions. This is harrowing stuff.

"To complement the distress of losing some of your friends and colleagues is an almost funeral dirge"

To complement the distress of losing some of your friends and colleagues is an almost funeral dirge. Here, the Sensible boys have managed to apply their golden touch, resulting in a sad, depressing, catchy and hummable tune. As for the main theme – *War* – we defy anybody to play it for a couple of hours and then not dream about it when they go to sleep.

What is it good for?

Using tactics and strategies, your aim is to complete each of 24 missions using a team built from several hundred conscripts. It's almost like those really sad *Police Academy* films, where ordinary people of all shapes and sizes arrive at the boot camp and join up. They've all got the same abilities, despite their odd-

The rocket launchers are tough, but not completely unbeatable. This a rocket launcher in action. However, some later levels are peopled by loads of them, which can cause problems - running in all directions at once is impossible, remember.

The desert levels are dotted with Wild West style flora and fauna - cacti and brush among others. This particular cactus is booby-trapped, though, in true Sensible style. Also available in this range: exploding sheep.

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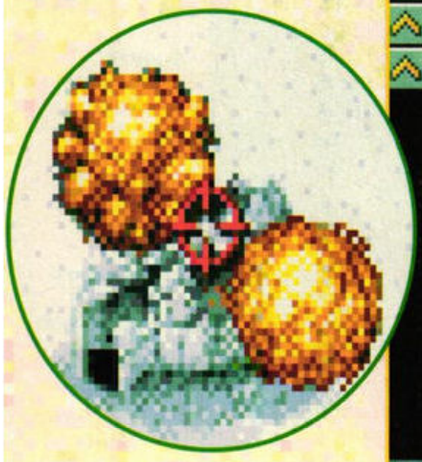
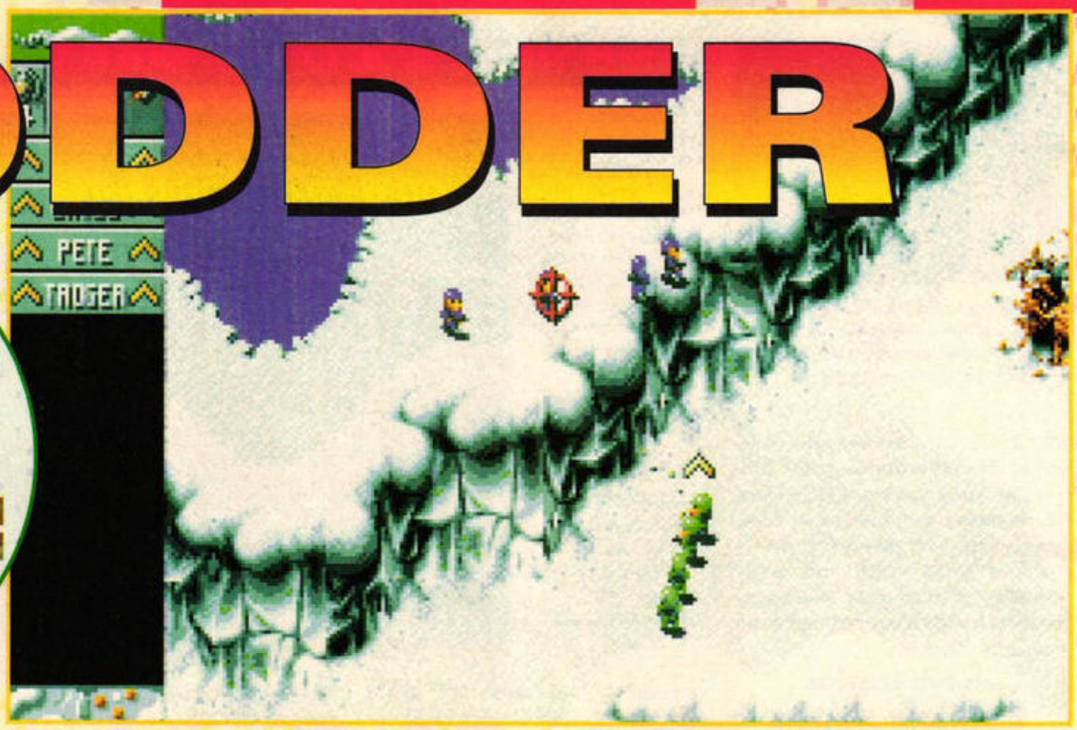
FODDER





Snow levels can occasionally be difficult to judge. The white parts are snow, whereas the light blue patches are made of nasty slippery-slidey ice. Here you can see our men with a target on the enemy.

sounding nicknames (Lex, Hector, Elroy and the rest), so there's no particular bias.

Each mission contains between one and six stages, so in total you have over 60 levels to play through. Although the basis of each level is similar, there are subtle differences which mean that you need to employ a different strategy depending on the circumstances. Most levels have the same brief – wipe out the enemy – but there are other tasks which you have to complete on some levels before you can move on.

For example, you might have to rescue a civilian. If you shoot him by accident, or if he gets caught in the crossfire, you have to go back to the start of the level and try again. Or you might have to just destroy all the enemy buildings, and any enemy soldiers which bite the dust along the way are just plain unlucky. It's all fair in love and war, as they say, and because it seems there's an infinite number of enemy soldiers hanging around in each building you're unlikely to lose any sleep over casualties.

"Yet again, Sensible Software have come up with a stunning new concept in video gaming"

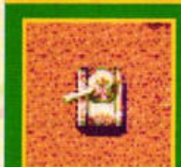
You might be wondering why you need strategies, if you mostly have to shoot things. Well, you see, some items you find in the levels can be quite, ah, temperamental to gunfire. If you begin a level with no grenades or rockets, but there are buildings to destroy, you can bet your life *(er...)* that there are rockets or grenades to be picked up. You can normally find them in little packing crates stacked outside the buildings. If they get even so much as scratched, they go off with a bang, rendering you helpless for the rest of the level. You see, no matter how much you shoot a building with your gun, you can't destroy it.

If you do happen to get stuck, you can press <Esc> to try again – but sadly it doesn't magically resurrect any dead players, it just adds to your group from the vast number of conscripts waiting back at camp. If you're canny you can save your position before a particularly difficult mission, and then if you do happen to lose your favourite player you can simply load him back in. That won't seem as daft as it sounds when you play the game, because you do get attached to certain key players who have done you proud in the previous mission. If they die, you feel really bad.

Er, absolutely everything

When *Mega lo Mania* was first released on the ST about three years ago it was ground breaking – a god game which behaved more like a coin-op arcade game. Other games such as *Wizball* and *Wizkid* also broke new ground in gameplay – in fact, the Sensible's only game which could be described as normal is *Sensible Soccer*, and that's their biggest selling game to date.

EXTRA VEHICULAR ACTIVITIES



TANK
The most dangerous opponents you come across – tanks fire high-powered shells, they're tough – and they move. You won't find them until Level Ten, and you don't get one yourself until later.

ALLIED JEEP
Jeeps are handy for going through most terrain fast. They have no armour plating, so you're vulnerable at all times to enemy fire.

ENEMY JEEP
The difference between an enemy vehicle and a friendly one is that the enemy vehicles have flashing red lights on the top. And they tend to drive towards you at high speeds – keep out of their path.

GUN TURRET
Taking cover from a gun turret is easy because they're fixed, so they can't follow you. The same applies to you if you hijack one – keep your eyes peeled for rocket launchers and enemy fire, because turrets aren't armoured.

SKIDOO
The skidoo is the best fun of all the vehicles. Only available on some of the snow levels, you can pack loads of people in, and go joyriding about the icy landscapes, running down trees and being a nuisance. Be careful – the neighbours don't take kindly to you having fun.

CHOPPER
Choppers are hard to shake off. If they hover nearby make sure you hide, or it fires at you. We haven't reached the levels where you can get in a helicopter yet, but we're told you can. Blame Sensible if we're wrong.

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Our boys, well-camouflaged by the trees, wait in ambush for the lone soldier taking a walk by the river. *Platoon*, eat your heart out.

Yet again, Sensible Software have come up with a stunning new concept in video gaming. *Cannon Fodder* manages to combine strategic wargaming with playability – it's a feast of blood which isn't overly graphic, portraying a nightmare scenario which is actually quite fun to get involved in.

"*Cannon Fodder* is a great testimony to the ability of the ST to carry great games"

It's also huge. The first seven levels are easy, designed to get you used to the controls before throwing you into the really hard stuff. An excellent design point is that the game introduces you to different aspects of the game gradually, so you don't run before you can walk, so to speak. On Mission Five, for instance, you get a little skidoo to play around in – beats walking, eh? You can fit as many men as you want inside, and not only can you accelerate and steer the thing around, you can also make jumps over ramps, Evel Knievel-style.

Later on, you get a small armoured gun turret, a jeep, a tank and a helicopter – each fitting in with its scenario, each with a part to play in the defeat of the enemy. Problem is, though, the enemy gets them too – and usually in greater numbers. You can spot an enemy vehicle a mile off, because of the flashing red light on top (see the Extra Vehicular Activities box on the previous page).

After Level Seven things begin to get hairy. The enemy soldiers suddenly begin to run instead of walking; their guns seem to be more powerful, more of them carry rocket launchers. It's almost as if they see you coming, and they stocked up on arms. Don't be worried by the rocket launchers, by the way – they're only effective if they take you by surprise. If you stay alert, you find that running towards them (screaming "Aaaaaargh!" if you like, to really get into the spirit of things) and firing madly usually gets the blighters.

So that's it. One of the best games ever on other machines, it's here on the ST, and it's wonderful. Yes, we know that *Frontier* was proclaimed as probably the best game of 1994, but *Cannon Fodder* pips it to the post.

It's a different type of game, as most Sensible games are, and it's a great testimony to the ability of the ST to carry great games. After last month's *Goal!* rant, I'm risking being branded a sycophant by applauding Virgin, because Sensible already know they can pat themselves on the back.

ANDY NUTTALL

AND HERE'S A LEVEL MAP IN FULL

TEAMS You can split your team of soldiers up into up to three groups – red, green and blue, which can be useful for attack formations. Any weapons are shared out between them.

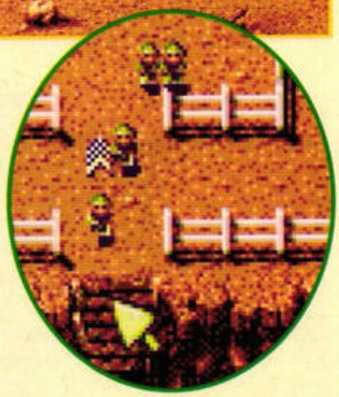
MAP ICON Click on the map icon to display a full map of the level, like, er, this one.

THE SPOT The small red X marks the spot where your selected team stands.

BUNKER Enemy soldiers usually hid here. Rockets can penetrate them easily.

WATER Your soldiers can doggy paddle through water, and thankfully their weapons don't get wet.

Ravines like this look incredibly deceiving, because they could easily be cliff-faces. But, go across the bridge carelessly, and you soon find out just how deep the chasm is.



This day-glo slop in the middle of the lush greenery is a large pool of quicksand. If your men go in and stay there for more than a split second, they don't come out - and then they're gone forever.

Cannon Fodder

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Needs 1MByte RAM

Highs
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- Huge number of levels.

Lows
- Accesses disk to restart the same level.

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ANOTHER WORLD

■ Ah. Now this is sort of difficult to explain. Lester has just been propelled from this big tank-like thing through the roof of this harem, after having a bit of a fight... oh never mind.

There are classic games, and then there are classic games. There are also, confusingly, CLASSIC games, and *Another World* is the latter. There are three main things you should know about it:

1. It's got a bloke called Les in it. Les is a scientist, you see, who's been inadvertently jerked off (if you'll pardon the expression) to this other world as a result of an everyday particle accelerator mishap, and spends the rest of the game falling, shooting, running and jumping back to earth, usually followed by masses of guards, monsters or reservoirs of water. Serves him right for being called Les.

2. It's by Delphine. Thus it has amazing cinematic graphics and excellent sound effects. In fact, when it first appeared there was nowt much else to touch it, with its smartarse cinematic cut-scenes and fluid animation. Even though now the world and his paint package is doing the same, it still looks smart. And hey! Good sounds, too. Makes a change.

3. It is one of the most annoyingly addictive games you're ever likely to encounter, thanks to the password system. You see, you might complete one level simply, gain a password, then spend two or three days trying the next over and over again, determined to get the timing right. It's pigging hard and at times you might feel like punching its face in, or at least sticking a paper bag over your monitor with a face drawn on and punching that. Oh, and 4. It's well worth getting hold of at this price.

See? It's so good, you even get an extra thing to know about it. What a game. What a name. What an... er, pathetic conclusion.

ED RICKETTS

■ It's all started going horribly wrong and we're not even past the intro. Blimey.

Another World

£14.99 Hit Squad
☎ 061 832 6633
Needs 1MByte

Highs
■ Graphics and sound make to you sit up and bark with joy.

Lows
■ A bit too frustrating in places.

93

POLICE QUEST

■ Sonny Bonds, a man of integrity, a man of resolve, a man who's just wandered into what appears to be some sort of toilet and library combo. Very odd.

Along with their twee and illogical *King's Quest* games, Sierra have been pursuing these *Police* games down the years. And they're not bad, refreshingly free of that "King Graham and his golden lavatory" rubbish.

Although the original's getting on now, it's still something of a seminal affair. Unfortunately the graphics and text entry system are somewhat "seminal" too. You are, sadly, Sonny Bonds, a rozzer in the town of Lytton which has suddenly been invaded by evil drug barons headed by a bloke called the Death Angel. Very like High Wycombe, in fact. Much frivolity ensues as Sonny heads on a wacky chase to undercover the perps.

Actually, that's the problem, there isn't much fun to be had. Being a policeman, Sonny has to observe many many many strict procedures; and being a person playing a policeman, you must observe along with him. So there's a lot of form-filling and rigorous routines to play through, interspersed with the arrests, patrolling and shoot-outs. Fair enough, but they don't half get tedious after a bit. Couldn't they just skip the scenes in which you have to take felons to the station, and cut to the chase as it were? This is a game, after all.

Still, there's always the attractive graphics to gawp at while you're reading another perp his rights. They even get quite gruesome in places – if Sierra had been on the ball they could've slapped a "Parental Guidance Suggested" sticker on the box and boosted the sales. Oh – they have.

Onerous detail aside, this isn't a bad little number for its age. It's not too bogged down with the ridiculous Sierra "sudden death" syndrome, for once, so you actually feel inclined to explore rather than shiver in a corner. You'll never look at a policeman in the same way again – because if you do they're likely to arrest you for loitering with intent.

ED RICKETTS

■ We're possibly on the wrong track here, but it's worth a try, surely.

Police Quest

£16.99 Hit Squad
☎ 061 832 6633
Needs 1MByte

Highs
■ Lovely new graphics and interface. Potentially good story.

Lows
■ Not enough adventure and too much mundane routine.

79

WIZKID

This is where the action's at. The main *Wizkid* playscreen, where *Wizkid* - in Head mode - bashes coloured bricks to dislodge some butterflies. The red nose gives him power to bounce bricks on your head.

***Wizkid* is every reviewer's dream and nightmare in the same box. On one hand, it's so damned playable, colourful, fun, brilliant, sexy, smooth and fast that stupidly salacious sentences simply slide out of your word processor. On the other it's, well, odd. Odd, and difficult to categorise.**

If we *were* to categorise *Wizkid*, we would probably call it a psychedelic adventure scenario, based around *Breakout*, with a few puzzles thrown in for good measure. Let's just say that it was written by Sensible Software, and they're well known for producing quality, but original, software (see *Cannon Fodder*, on page 66).

The star of the game is Wizkid. He has two main modes of play: Head, and Body, which makes it into a philosopher's nightmare (Does Head control Body, or vice versa?). Use Head to knock bricks around colourful screens. Bricks kill insects, insects turn into bubbles, bubbles contain musical notes, and musical notes change into coins.

You can leave Head mode and join Body any time you wish. Puzzles come along with Body mode, the answers to which involve items bought from the shop. So, imagine zipping between Head and Body mode, making money, spending it, then solving some puzzles, and you've probably got some idea of *Wizkid*. Or not. It's great. Does your Head hurt?

ANDY NUTTALL

Flying the plane isn't really part of the game it's just to choose which level to play next. It's dead colourful though, and can't fail to brighten up your day.

Grabbing the bubble containing Choppers enables you to bite on to bricks, and throw them around. They also give you an almost Giger-esque smile. Scary.

Wizkid

£12.99 The Hit Squad
☎ 061 832 6633

Highs
- Beautiful psychedelic graphics.
- Brilliant arcade fun...
- ... with some puzzle elements.

Lows
- Banging bricks with your bonce could give you a headache.

91%

PC GAMER

PREPARE TO MEET THY

You're sure to have a *Doom*-tastic time in the March issue of *PC Gamer*, as we go totally bonkers, mate, about the PC's best ever shoot-'em-up in a three-page review special. We've also got an exclusive interview with the game's creators, id Software, who talk about how they did it and why their next game will be even bloodier! And to cap it all, there's even a full run-down of those elusive cheat codes in Diagnostics.

Aside from all this, there are a few other trifling extras – *SimCity 2000* heads up our review section with the highest *PC Gamer* rating yet, along with the likes of *Evasive Action*, *Mortal Kombat*, *Quest For Glory 4*, *Genesia* and *Unnecessary Roughness*, the best American Football game yet... Add to this the usual batch of Scoop previews, invaluable tips for *TFX* and *Sam & Max Hit The Road*, a gamer's guide to CD-ROM, the *PC Gamer* 1994 Readers Poll and you've got quite possibly the best thing since, er, the last issue.

Oh, and did we mention the coverdisk? Silly old us. How does an exclusive ten-level playable demo of *Sid & Al's Incredible Toons* grab you? Yeah, we thought it might.

March Issue On Sale Thursday 24 February

PC GAMER

Still smarter than the average PC games magazine

www.stformat.com

STEEL

Take those Ray Bans off, you idiot, this is no time to try and look cool.

Nerves of steel, ice-cool under fire, logical and harbouring deep-seated psychological hatred of the enemy. It's a man's life in the Air Force

Atari seem to be stuck in a time warp at times. Coin-op games from the mists of time keep appearing on the latest sexy pieces of hardware. The latest culprit is *Steel Talons* which has already appeared on the Lynx and now makes its debut on the Falcon. No complex flight sim stuff here – phew! It's a straight shoot-'em-up, your helicopter vs the world. There are only seven controls to worry about, all on your lovely new Falcon and Jaguar controller.

You are in command of the craft's altitude and the tail rotor, as well as controlling which way the nose points. To deal with the hordes of legitimate targets you have a rather wonderful cannon and a limited supply of missiles. The bird flies in a proper helicopter manner, just dip the nose down to move forward. Altitude is limited to 1,000 feet – the higher you go, the more enemies can get a bead on you. So fast and low is the order of the day, most of the time, until sneakier enemy units start appearing on top of mountains and the aircraft start buzzing you from above. You have a choice of looking through the cockpit or viewing your whirlybird from above and behind, which is often easier.

You have a targeting square which moves about the screen locking onto suitable targets. Fire your weapon and they're history, you really can't miss as long as you keep locked on and don't fly too close.

Enemy hits knock out your fuel supply – when this hits zero it's time to crash and burn. You have a number of complete refuels – effectively lives. You can crash into the scenery as many times as you like, though this uses up valuable fuel. At the end of each blast you are awarded more fuel – the quicker you obliterate the enemy the more fuel you get. And that's about it.

There is no complex set of keyboard commands that you have to learn, you don't have to land after each mission or bother about ECMs, chaff, flares or even enemy homing missiles.

The missions are short and furious. It's dead simple to blast everything. Each landscape is small and dotted with targets, tanks, AA,

The tanks aren't the sitting ducks they usually are in helicopter gunship games. In fact, they shoot back. Bloody cheek.

Some missions just involve flying through a canyon, the time limit set leaves no room for error.

CHARLIE, DON'T SURF

Alright, stop panicking. It's not the horribly complex set of flight controls that it appears to be. All you really need to do is keep an eye on the map

1 Compass – in conjunction with the map you can plot courses to enemy targets.

2 Speed and altitude dials – not terribly useful, you can look at the ground to see how high and how fast you are going.

3 Score and time – er, this shows you the score and time, surprisingly. The quicker you complete a mission the more units of fuel you earn.

4 Map – shows a map of the entire mission area with your targets as little red dots. When you have target lock-on, a little picture of the intended victim appears here, it's good to know exactly what you are blowing to smithereens.

5 Fuel gauge – the all-important commodity. Enemy hits and crashes reduce your supply.

6 Radar map – in traditional style, enemy units within range appear as red dots.

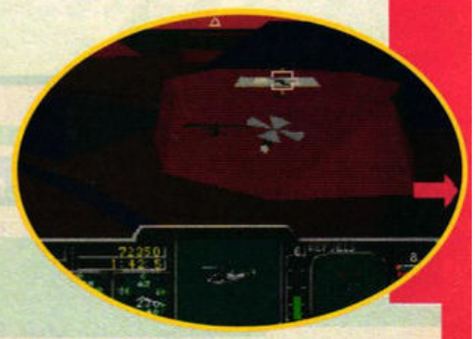
7 Missiles – damn smart ones too, they never miss.

The 3D world in all its glory. From altitude it's quite impressive, albeit dangerous.

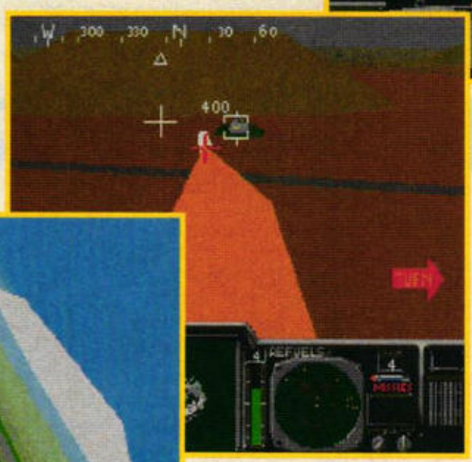
TALONS

If you spot an airfield on the mission map fly straight at it and try and catch the aircraft while they're on the ground - It saves a lot of needless pushing and shoving later on.

The view from above and behind. It's often easier to keep track of things with the external view.



Moody dusk scene. Reminds me of a time when... *(Cue Doors music and slow motion.)*



The view from the pilot's seat a moment after launching off a missile. They never miss too, as long as you keep locked on to the target.

A classic starter's position, spinning all over the shop trying to keep a target in view and give it a going-over with your cannon. Lovely gradients, eh?

trucks, bunkers and enemy helicopters and aircraft. The aircraft are the worst, if you don't catch them quickly while they are still on the ground, then they're complete swines until you shoot them down. You need to hover, get some altitude and use the tail rotor to turn and face them. As soon as you get your target locked on, quickly fire a missile. Otherwise they keep buzzing you, chipping away at your fuel with their cannons.

It's easy to fly, you can soon be skimming through valleys and following roads shooting up convoys in no time. The map has a strange time-space effect, go north off the top and you appear at the bottom. Einstein called this the "wrap-round" effect. The landscapes vary from deserts to chock-a-block with mountains. Missions take place at night, dusk and in fog as well as on glorious sunny days when you can see for miles.

If you know a friend with a Falcon then you can connect the two machines via the serial ports and fly your chopper in a head-to-head battle against them – an excellent feature.

Visual contact

The graphics are light sourced 3D polygons which means the colour of each face changes in relation to the light source – pretty groovy, eh? There are graduated shades of colour in the skies and the landscape adding a feeling of depth. Your helicopter is rather small and weedy-looking in the external view, a decent 3D shape wouldn't have hurt. Most of the 3D shapes are simple – your cannon flash is a yellow triangle – hardly impressive. The 3D world is respectably full of objects and moves fast, not blisteringly so, but fast enough to keep things good and playable. There is a little slowdown when there are a lot of targets about.

There are simultaneous sound effects and music, and the volume can be adjusted to suit. The engine note changes with your speed, but lacks punch. The cannon noise is pathetic – hundreds of steel cannon shells blasted across the sky sounds like a damp squib.

The Falcon's internal speaker doesn't help either. It's a waste of time, disable it at once. With some decent amplification from the headphone socket, things start to sound a whole lot better. Each mission starts with a snatch of digitised speech offering some helpful advice. Looking over someone's shoulder while they play isn't quite the visual and aural treat you might have expected from a Falcon game.

Debrief

It's hard not to feel a twinge of disappointment when you first load *Steel Talons*. It doesn't look wildly impressive. The light-sourced 3D routines and colour graduations are quite pretty, but for the most part it looks very ordinary. It's not until you start playing that it shows its true colours. It's playable, it's addictive – good heavens! it's a good game. Your helicopter is easy to control and the action is non-stop. The missions are fairly simple but they are varied enough to keep you on your toes.

The Falcon needs games support so any release is good news. *Steel Talons* won't set the world on fire, but it's a sound arcade game. Using old coin-ops means that you get games that have actually proved themselves, but you don't get innovation.

The Falcon has enormous potential as a games player but *Steel Talons* doesn't really stretch it. As 3D shoot-'em-ups go it's an enjoyable and playable blast. It's simple and fun, as long as you weren't expecting more you should be happy. With bags of gung-ho, death or glory style, flying it's a game that grows on you.

CHRIS LLOYD

Steel Talons

£29.99 Atari UK, Atari House, Railway Terrace, Slough, Berkshire, SL2 5BZ ☎ 0753 533344

Highs
- Scores where it counts, it's playable and addictive.
- Sets a fast pace.
- Easy to fly.

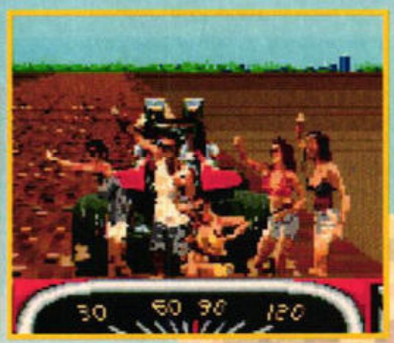
Lows
- Not the most eye-popping looks, especially your helicopter.
- Once you've played a few missions there's only more of the same to look forward to.

72%

The after race snogging session. To the winner, the spoils. We're not sure we totally approve of this sort of thing, but we're willing to look into it.

ROAD RIOT

This game isn't going to be released until later this year but *ST FORMAT* manage to give you a sneak preview of this racing sim from Atari

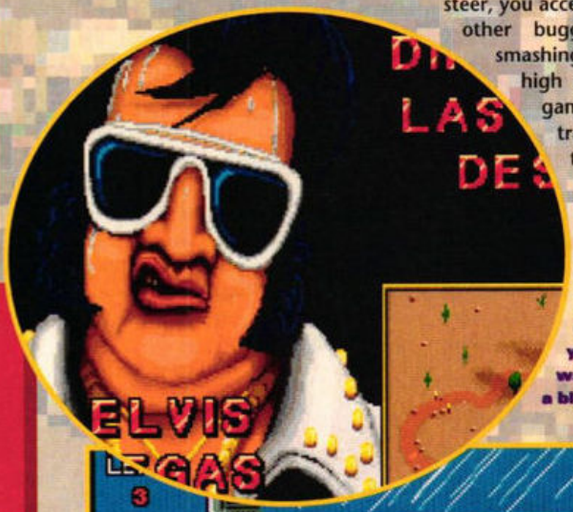


Drive too close, or indeed right through the crowd, and you are rewarded with a wonderful aaahhhh sample. It's the same crowd at every track - they look a little odd in their swimwear on the arctic track.

At bloomin' last, some Falcon-specific games are starting to appear, boasting the kind of graphics and sound that the beast is really capable of. We've got our hands on an early version of *Road Riot 4WD* to play about with, there's still a significant amount of work to be done on the gameplay, but here are our first impressions. As soon as you load it you are on familiar ground. It's a straight conversion of the original arcade game, and a rather groovy arcade game it was too.

You are at the controls of a four-wheel drive buggy thing armed with a cannon, well, why not? You compete over 11 circuits – spread across the world – and against four similar vehicles. Each circuit has its own distinct flavour. Nothing complicated here, you steer, you accelerate, you fire at the other buggies and then go smashing into the scenery at high speed. You start the game with a beginners' track before moving on to the championship proper. Each race is three laps of absolute mayhem with buggies bouncing around like mad things over the twisty-turny tracks. Corner too fast and you roll it, hit the scenery and you explode. The cannon comes in very handy for slowing down the opposition. How many times have you wished for that in real life? Cut me up, would you? Blamm, blamm, terrific.

Australia and you are in a familiar position, spinning uncontrollably off the track. The preview version has some dodgy gameplay that promises to be addressed in the full version. Good-looking car though, eh?



Your host for this race, a sad sneering bloke who thinks he's somebody else. Why don't they dress up like the young Elvis, when he was thin, angry and a bit interesting?

Paint job

The first thing that strikes you are the graphics, they have been taken straight from the arcade game and are in 256 glorious colours. The

Road Riot 4WD is one of the handful of games developed specifically for the Falcon. It uses its enhanced graphics and sound to good effect. More, please!

When you crash into the roadside obstacles your whole car disappears in a horrendous fireball, only to reappear seconds later intact. Gosh.

The starting grid complete with sampled girl to get you going, as it were. Quick! Gun the motor, spin the wheels and go head first into the first bit of scenery - we did.

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4WD

Your buggy bounces all over the shop after zooming over a hill at top speed. Getting the thing to go straight for any length of time is a challenge all in itself.

The game features a special guest appearance by the one and only Murray Walker, inexplicably in drag.

The arctic stage with its smart track effect, it looks great wooshing towards you. Each track has its own mix of graphics, sadly the lions from the coin-op are missing from the African stage.

Road Riot in full swing. The rear view mirror only shows the other buggies and not the ground, which looks a little strange. There's a big map on the right so you can see the corners coming. Everything moves very smoothly.

The wilds of Ohio with Nasty Nelson. Before each race you get a quick peek of the track, a mug shot of your host and rather a long wait while it loads and decompresses.

The track selection screen. There are 11 different tracks from all over the shop. To win the championship you need to win all of them - a tall order.

buggies are gorgeous-looking affairs and move about the screen smoothly. The animation, at this stage, is a bit jerky at times because the buggies don't have enough frames – this is particularly noticeable when you roll or spin.

All the tracks loom forward at a fair pace and there's a clever textured effect to the road surface. The scenery and roadside obstacles are all sprites, and jolly good for the most part although they change sizes a bit suddenly. The still screens are nifty too. It all adds up to a very visually impressive game, as a Falcon game should be.

As you would expect the sound effects and music are in a different league altogether from an ST game. Each track has its own piece of sampled tracker music that ranges from funky to a little naff. The sound effects are all samples too – tyres squeal, explosions boom and races are introduced by a strange boomy American voice.

At the moment the engine noise is weak and the cannon lets loose a shot with a pathetic "phut" noise. Thankfully, the music and sound effects have independent volume controls.

On the road

It's when you start playing it that you hit the big snag, playability. The preview version we played has yet to have the controls sorted out – it's very hard to steer the damn thing. You go skidding from one side of the track to the other, crashing every 30 seconds. After a lot of practice things come together a bit and a halfway decent race is possible, but it's frustrating and difficult.

Verdict

It looks and sounds excellent but the gameplay is still badly flawed. Atari are on top of this, and have promised a radically altered release version. Armed with a controllable buggy the game could be a real barn stormer. Distribution hasn't been sorted yet, but when the final version appears, you can expect to part with £29.99. We look forward to reviewing it when it's completed.

CHRIS LLOYD

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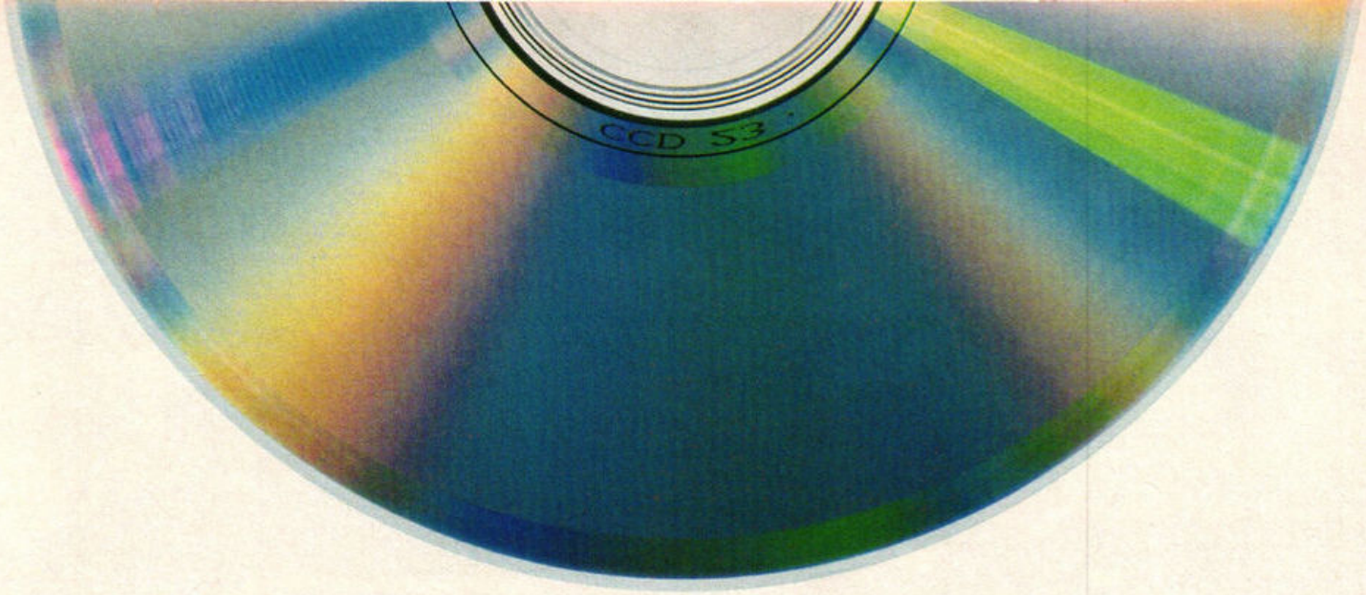

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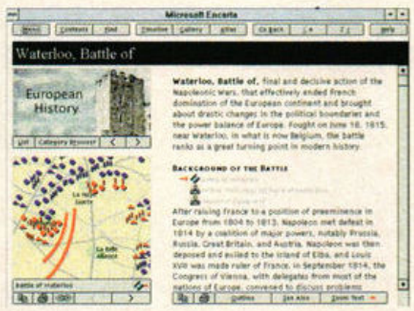
Educate.



Inform.

Entertain.

CD-ROM Today

We'd like to help you explore the amazing new world of CD-ROM for the Mac and PC.

Our magazine, complete with 600Mb disc, is out on March 31st – Easter weekend. See you then!

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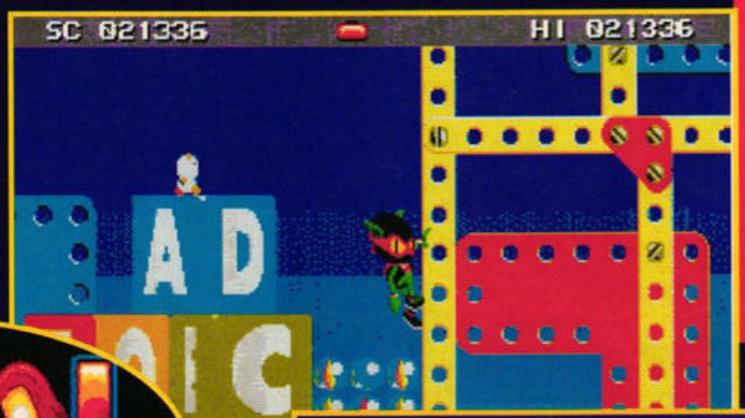
GAMEBUSTERS

Sex and violent death are on the Gamebusters agenda, with complete solutions to both *Robocop 3* and *Leisure Suit Larry*. Tsk tsk, what the children of today do play...



ZOOL

Stacks of *Zool*-related mail has forced us to print this cheat – which does work, as long as you're careful with the keys. Say a big thanks to **James Marson** of **Rotherham**...

On the title screen, type PANDA. The screen flashes to let you know the cheat has been activated. During the game, press:

SPACE and <1> to make you invincible.

SPACE and <2> to move to the next stage.

SPACE and <3> to go to the next level.

Also, on the keyboard in Level 2.2, jump on the second, fourth, sixth and seventh keys from the left. You can now reach the next level.

■ *Zool* may be a difficult game to finish, but you can zoom between levels with our excellent cheat from James Marson. Forget GOLDFISH (which we printed last month), try PANDA instead.

ISHAR 2

This cheat for *Ishar 2* from **Peter Bennett** of **Preston** enables you to easily duplicate ingredients, bread and arrows.

Get one of the characters, and put the hands on the control panel. Now select another character, and give him one of the items you need duplicating. Arm him with a double-handed weapon (so the other hand is blacked out), and you are ready to begin.

Take the item and click on the blacked out hand. The number on the bottom right-hand side should be 0 – don't worry. Now place it on the hands in the control panel. The number should turn back to one. Move it up to the second character's sheet, and place it in there. You should now have two of that ingredient. Take one and repeat until you have a sufficient quantity of that item.

Note: sometimes if you pick up a group of duplicated items and give them to your character, you lose them and only have the original one left. This is annoying, but just duplicate them again.

■ What's that? You're still stuck in *Ishar 2* even though we printed a full solution over the past few issues? Maybe here, then, we have the answer – a cheat to get as many items as you like!

CAPTAIN BLUNDER

Don't worry about difficult games – our Captain eats them for breakfast. Then he spits them out, we sift through the remains, and cobble them together into the veritable encyclopaedia you see before you. Help is at hand once again

Heap good game...

When I try to leave the village in *The Secret of Monkey Island*, the game completely stops and then it displays the message: "#41 Heap full. Game over." I've restarted the game from the beginning six times, only to get the same message every time. US Gold kindly sent me a completely new boxed game, but the new disks are exactly the same – v1.0, 2/19/91. Please can you help?

Jon Titchmarsh, Bristol

CB: *We also had a letter from I Smitherman of Bury St Edmonds complaining of the same problem. Heap Space is the area of memory*

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LEISURE SUIT LARRY

Larry's more recent adventures may not have been released on the ST, but that's not stopped Alan Docherty of Glasgow sending in this complete solution

Go into bar and type SIT DOWN. Talk to Lefty and buy a whisky. Stand up and go to the top left door. Give the man your whisky and he gives you a remote control. Take the rose from the table. Now enter the door in the right wall. Keep reading the graffiti on the wall until you get the "password Ken sent me." Look in the sink and get the ring. Don't flush the toilet. Go back to the bar and use a coin in the jukebox. Leave Lefty's the same way you came in. Stand by the road, but not on it. Call a taxi. Go to the taxi and type OPEN DOOR. Tell the driver to go to the store by typing STORE. When the taxi stops pay the driver – type PAY HIM or he kills you. Go into the store and type GET WINE and pay the storekeeper. Ask about rubbers and the storekeeper gives you a wide range to choose from. When you've left the store wait for an old tramp and give him the wine. He gives you a penknife in return.

Call a taxi and tell the driver to take you to Lefty's. Go to the door on the right and type KNOCK. When you're asked for the password say KEN SENT ME and you are let in. Go to the TV and switch it on, then change the channel. Press <Return>, <F3> and <Return> again. Keep doing it until the pimp moves away from the stairs. Go upstairs and talk to the woman on the bed. Type USE RUBBER and TAKE OFF CLOTHES. GET INTO BED. When you've finished, type TAKE OFF RUBBER and get the candy from the table. Open the window and type CLIMB OUT WINDOW. Go left and you fall off the balcony into the bin. Look in the bin. Type TAKE HAMMER and get out. Go to the left side of the screen. You're now back at Lefty's. Get in the taxi and go to the casino. Pay the driver.

Enter the casino and go to the back. Get the card out of the bin by typing GET CARD, then go to the cabaret room and watch the dancers. If you go out then back in, you see a man talking rubbish. Go back and sit down on the empty seat and gamble until

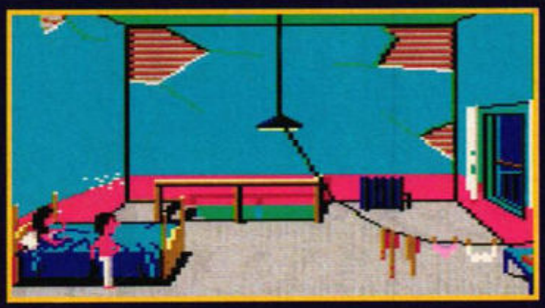
You don't need to do this to complete the game, but it does make for an interesting grab. Typical of Larry not to shut the door, eh?

Fat bouncers can only mean one thing - soft porn movies. To understand, try clicking the TV remote control a few times.

The card which you can find in the bin at the back of the casino gets you into the disco. But what's a valid card doing in the bin? Who knows...

Buying a pack of condoms can be an embarrassing experience if your chemist has a loud voice. And some bizarre condoms.

The New York cabbie's a bit of a card, but he kills you if you try to leave the cab without paying. A bit dark outside, isn't it?



Upstairs from the TV, there's a certain femme hanging around in bed. Lucky, eh? Even though the action's censored, this isn't really one for kids.

which contains the main game, and apparently some 0.5MByte upgrades are causing problems. This happened with the original full-price release, and LucasArts managed to fix it by copying the game onto single-sided disks – but Kixx XL, in their wisdom, released the original "un-fixed" version. Why they didn't release the fixed version of the game is unclear.

LucasArts and Kixx XL are arranging a fixed version, so write to the Customer Services Manager at the following address: Kixx XL, Units 2-3, Holford Way, Holford, Birmingham, B6 7AX, stating your problem.

Total flop?

Please can you tell me a cheat for *Hudson Hawk?*

Paul Rankin, Clydebank

CB: *Pause the game, and type SANITYCLAWSISCOMINGTOTOWN. Easy, eh?*

Hang on, that's not Jocky Wilson. That's a really bad picture of Greg Norman. *Ultimate Darts or Ultimate Golf?* As bad as each other, we say.

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you get around $245. Leave the casino and get the apple from the man. If you don't get the apple, go out of the screen then come back again and the man should appear. Get in the taxi and go to the disco. Pay the driver and get out. Go up to the bouncer, show him your ID card and he lets you in.

Go upstairs and sit beside the blonde. Look at her and give her the candy, the rose and the ring. Ask her to dance and then watch. After this give her $200 for the hotel room. Exit the disco and call a taxi. Type QUICK WED. Pay the driver and get out. Go to the flasher and look at him. After this go into the chapel and get married. When this romantic wedding is over, exit the chapel and walk left off the screen to the casino.

Go into the casino, walk past the gamblers and go to the back of the second screen. Walk to about the middle, then press down to get into the lift. Type PRESS BUTTON FOUR to go to the Honeymoon Suite – the door with the heart on it. Knock on the door and enter. Fawn is lying on the bed, but you need the wine first. Turn on the radio and when an advert for wine comes on write down the number on a piece of paper. Go to the door and open it. Go to the lift and type ONE, then go to the outside of the casino. Get the taxi, type STORE and pay the driver. Get out and use the 'phone. When asked type in the number. When asked where to take the wine, type in HONEYMOON SUITE.

Get a taxi back to the casino. Remember to pay the driver. Go back up to the Honeymoon Suite, pour Fawn a drink and watch what happens next. When she's tied up use the penknife – which the tramp gave you – to cut through the rope. Pick up the rope and go downstairs for a spot of gambling with the $10 she didn't find. Gamble until you have about $60 – it's easier if you save the game each time you win.

Fawn, your prospective wife, is a big fan of luxuries - so you have to keep her sweet with lots of roses and chocolates, or she might get fed up and go off you.

And here you are, waiting at the church. You have your wife and you have the ring. The ceremony's conducted by a drunk - no change there, then.

The idea of the game is to find true love. Could it be behind the door with the heart? Or is it just Fawn, ready to tie you up and steal your money?

Go outside and get a taxi to Lefty's. When you arrive at Lefty's go up to the prostitute's room. Climb out of the window and onto the balcony. Tie the rope to the rail and yourself. Climb over the balcony, using the hammer to smash the window. Get the pills and climb onto the balcony. Untie yourself and climb down. Go to the front of Lefty's, call a taxi and go to the casino. Go to the top floor, talk to the girl at the counter and give her the pills. When she walks away, look at the desk. Press the button to call the other lift. Get in the lift and go up.

When you're in the penthouse, go to the backroom and open the cupboard. Have a look inside. When the inflatable lady flies away you automatically follow her. Talk to the woman in the bath and take your clothes off. Give the woman the apple you got from the man outside the casino. Now you have found true love and completed the game.

Ah, now's the time to use that card. The one you found in the bin. Which turns you into a VIP at this particularly exclusive discotheque. Hmmm.

Yep, your predictions were right - Fawn ties you up and then runs away. Fortunately, your tramp friend gave you a penknife, but where is it?

On the ocre

I've recently picked up the old game *Ultimate Darts*, and each time I play I get thrashed. Please could you give me a cheat or hint for it? Also, maybe a cheat for *Jimmy White's Snooker?*

M Harrison, Ayrshire

CB: *Sadly, no Ultimate Darts cheat – perhaps someone out there knows of one? The cheat for Snooker is go to the trick shot screen, use commands <F7>, <F4> then <F1>, and go to 147 break from the game menu.*

Punctuation!

I'm writing to you for cheats or tips for *Burger Man* and

Epic was just one of 21 tips requested by Gary Crowton. Come on, I'm not superhuman! Oh, hang on, yes I am! Damn.

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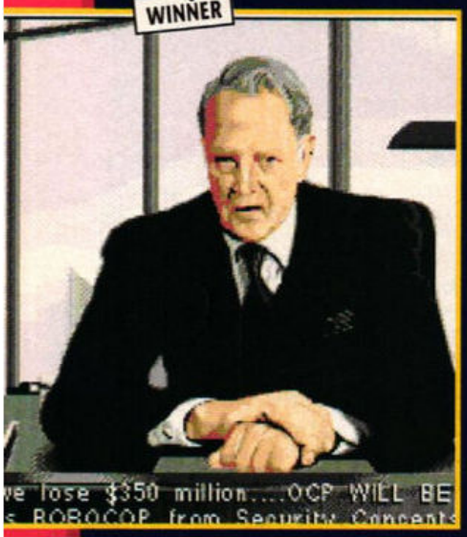
ROBOCOP 3

Our lucky £25 winner is **Simon Newton** of **Lancaster**, who sent in this excellent solution along with a couple of maps. Cheers, Simon!



■ *Robocop 3's just like real life. It's even got an old fart reading the news, and everything - hell, who needs VR?*

Level One
Van chase

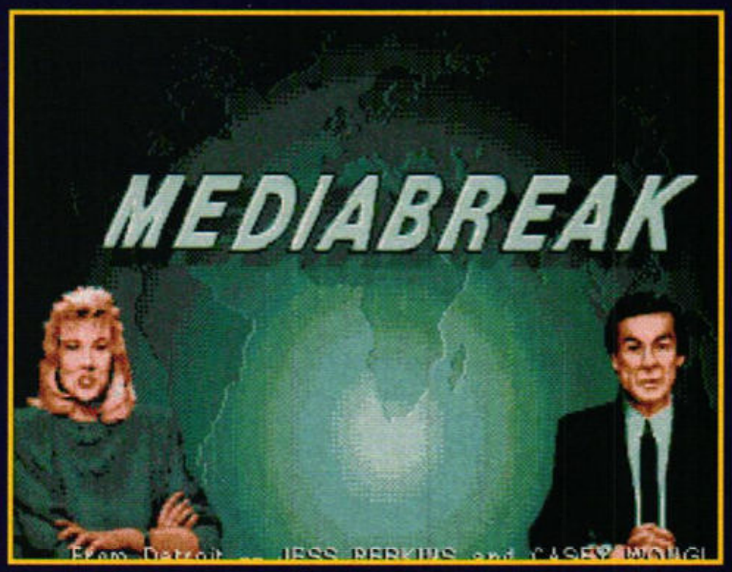
There are only two places on the van to watch out for – the right passenger seat and the back. Draw level with the van from the left, and then ram it from the side. That way you shouldn't get shot too often. When the van blows up you receive a message to go and help Lewis.

Go to the white dot on the map. Find the burnt-out car – drive past it and then steer into the raised black platform.

Level Two
See diagram below.

Level Three
The church

You are given two options here. The first is to go down the sewers and kill 60 squatters – don't do this one. Instead try the second option which is to face the Rehabs outside. Shoot all the lights, then shoot the guns on the androids. Now have a go at the people. If you do all that quickly enough, you should proceed to Level Four.

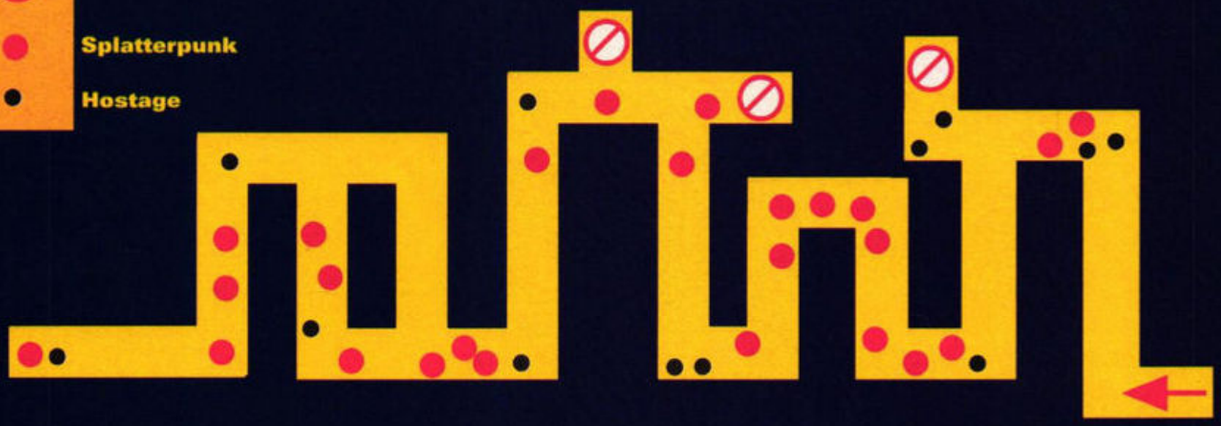


■ Mind you, do newscasters really have names like Casey Wong? Well, maybe in the US of A - where Casey Kasem lives, reportedly.

Level Two

Fight the Splatterpunks

Follow the map to complete this level. Note: when shooting at Lewis' kidnappers, be careful not to hit Lewis himself! If you can't do this level, simply swap disk B for disk C while the animation is running. This skips Level Two and goes straight to the church.



Colossus Chess and Epic Cybernoid 2 and *Deluxe Strip Poker* and *Exolon and* and... blah, blah, rhubarb... *Stormlord* and *Supernova* and *Yogi Bear and Friends* and *Treasure Hunt*. Is *Epic 2* coming out?
Gary Crowton, Newton Aycliffe

CB: *For your first 21 requests, I suggest you give the Cheater's Digest a call on ☎ 0480 433455. It'll cost you a few quid, but most of the answers can be yours. As for Epic 2, sadly, the answer's no.*

Although Ocean still have several games coming out for the ST, DID (the developers of Epic) have dropped support for the machine.

Fun, fun, fun
Have you got any tips on how to get into Funland in *Grandad 2?* Do I have to send £8 to buy a protection matrix before I enter?
P Richardson, Nottingham

CB: *Sadly, you can't enter Funland without registering the game. Even when you have the code sheet, you still have to complete the first part of the game before going into the amusement park. There was a full solution in last month's Gamebusters turn to page 60 if you haven't got your copy.*

Yoga flame
Have you got any cheats for *Dragon Ninja?*
Matthew Dye, Coltishall

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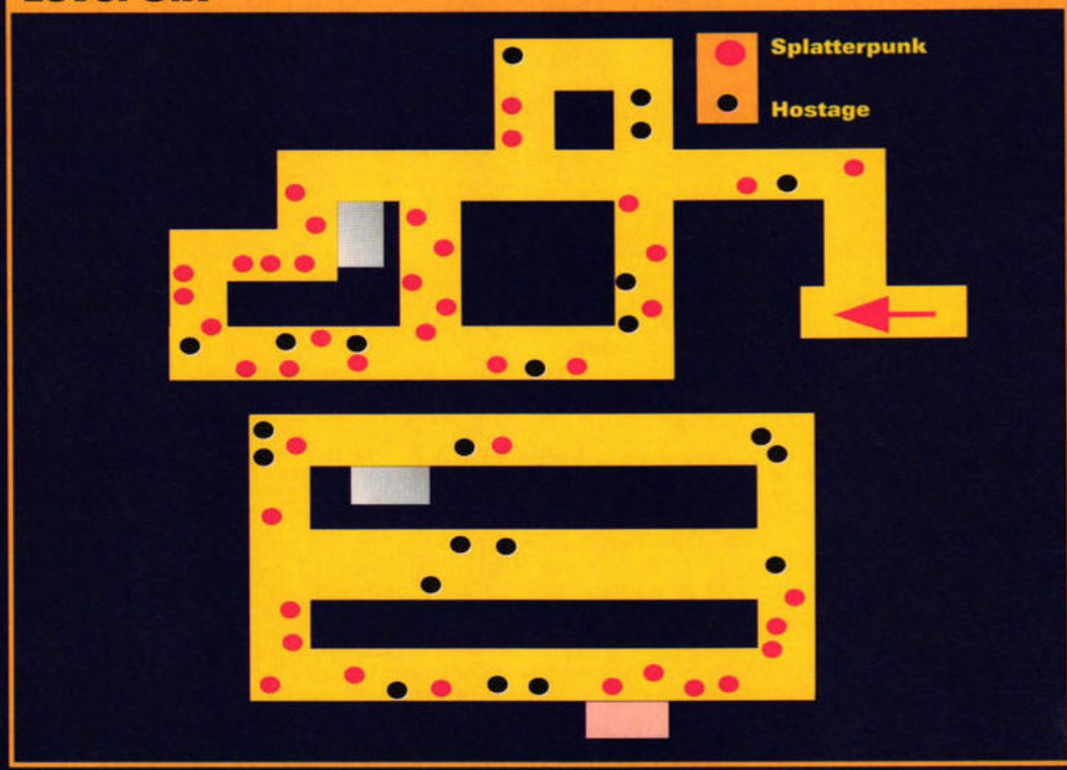
Level Four
Two options here: either go to the police station or go to the hotel. Try the hotel.

Level Five
Gun battle in the hotel
To complete this level simply walk along the corridors shooting at the security guards. Use the maps, and don't worry if you get killed because you just continue. Note: you can skip this level by swapping disk B for disk C at the animation of Robocop driving to the hotel.

Level Six
See the diagram on the right.

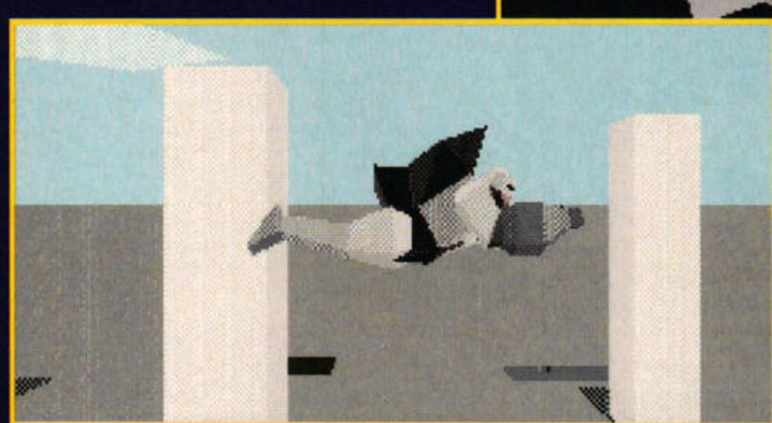
Level Seven
Fight with Otomo
This is one of the easiest levels. Simply move slightly to the right, then when the guy jumps towards you punch him. When he jumps back, draw your gun and shoot him. If this doesn't work, or if you're running low on energy, pause the game and wait for a minute or two. Now unpause and your energy should be increased.

Level Six



Level Eight
Gyropack
Practise the arcade part of this level a lot. When you begin, you should see two helicopters – gun them down with your cannon. Now slow down so you can get a proper lock-on. Trash this one, then switch to machine gun and swoop over the ground forces at full speed with your finger pressed on the fire button. With just a few swoops you should destroy all the ground troops. You could always cheat by pausing the game, holding down <Shift> and typing THE DIDYMEN, then skipping levels by pressing <Escape>.

Level Nine
OCP tower
Here you fight Otomo. Use the same method of gunning him down, pausing has the same effect on your energy as Level Seven. When he's dead, it's the end of the game.



■ This is you - or at least, in the game. You can view yourself from above, or below, or sideways even.

■ The flight sequences are particularly great - kind of like *Starwing*, only years before. Hey, who says the ST isn't a world-beater?

CB: *Simply type in TERRIFIC, then press <F3> to get infinite lives. Hit <L> to skip levels.*

Ghost city
I've lost the two sheets of codes of *Sim City*. Could you please tell me where to get them?
A Wallace, Sim City

CB: *Send your original disks to Infogrammes at this address: 18A Old Town, Clapham, London, SW4 0LB. They shall endeavour to replace your code sheets.*

■ Infogrammes' brilliant *Sim City* still attracts loads of players, even now, several years after its release. This is Frisco in 1906, apparently.

Write to Captain Blunder, *ST FORMAT*, 30 Monmouth Street, Bath, Avon BA1 2BW

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FEEDBACK

Disputes about the Jaguar and a couple of your arty submissions dominate this month's letters pages... why not join in the fun?

Lessons in flatplanning

Why do I find so many seemingly random black and white pages? It looks terrible if you're just leafing through the magazine. At least have a black and white section where high resolution programs are reviewed.

Graham Ashford, Essex

stf: *We've dispensed with mono pages these last couple of issues, but just for the record, the mono pages weren't actually included randomly. The magazine's made up of three 32 page sections. To include 16 mono pages, which is the number I had to, they have to be in a certain place in these sections to accommodate the way the printing rollers work. Also there aren't quite enough high resolution programs coming out each month to fill 16 pages.*

What a winner

Being one of the few people who have so far acquired a Jaguar I can confidently state that in spite of Atari's marketing record it will be a winner. The displayed graphics and response speeds easily match those of an arcade machine and the colours are stunning. My two sons Matthew and David – both experienced and skilful console crunchers since the days of the Speccy – are completely "cybermorphed." Although the game is difficult to master it is easy to play and my seven year old daughter Claire has great fun blasting everything in sight. And all this for just under £200.

Cybermorph is just the first game. Assuming future software matches the extent of the Jaguar's capabilities and all the add-ons in the pipeline materialise, surely even Atari can't go wrong.

Allan Gibson, Hampshire

With its stunning graphics it's not surprising *Cybermorph's* a winner.

stf: *We're pleased to hear you're enjoying your new machine – stocks of Jaguars should be increasing over the next few months so even more people can experience the 64-bit phenomenon.*

Musicky?

How do you link a musical keyboard to the ST using the MIDI ports on the side? I have connectors suitable but can't get any input or output from my MIDI programs. You can use any of this letter in your magazine but I would appreciate a personal letter. If I continue to be satisfied with your magazine, I'll take out a subscription.

Andrew Auchterlonie, Fife

"Having acquired a Jaguar I can confidently state it will be a winner"

stf: *All you need is a MIDI lead which you can get hold of in any music shop – they cost anything upwards of £5. I'm afraid that we can't reply personally to any letters because we simply don't have the time to do so, even if you send a stamped addressed envelope.*

Own *Goal!*

I recently bought a copy of Virgin's *Goal!* but to my distress found it riddled with bugs that mean it crashes all the time – I can only just about complete one game so playing a cup competition is impossible. Are Virgin doing anything about this problem?

Alyn Hughes, Liverpool

stf: *Just goes to show you should have waited for our review which didn't appear until last issue in which we warned you of the problems. Anyway, the good news is that Virgin are doing something about it, they're presently trying to sort out the bugs, look out for info in the news pages of ST FORMAT*

If there's anything you'd like to add to any of these discussions, or if there's any subject you'd like to bring up write to Paula Richards, Feedback, 30 Monmouth Street, Bath, Avon BA1 2BW.

ST VS JAGUAR VS FALCON

There's a great deal of mixed opinion regarding our Falcon and Jaguar coverage

STF is being spoiled by you taking over space with the Jaguar and Falcon. Your magazine name clearly says *ST FORMAT*, not *Jaguar* or *Falcon Format*, so why not make another magazine or make *ST FORMAT* 100 pages longer?

Ross McCullock, Perth

We don't want just a 16 page Jaguar sepecial – we want more – 32 pages! 64 pages!

Robin Byles, Sheffield

I have an ST not a Jaguar. Why not give a separate Jaguar supplement in a plastic container?

Mark Jones, North Wales

I loved the section on the Jaguar which silenced many a Sega and Nintendo owner who suddenly found it appropriate to worry about the Jag. It made the proud owners of CD32s curse a little.

Jon Richardson, Lanarkshire

The thing that annoys me personally is the coverage in *ST FORMAT* given to Jaguar.

David Eaton, Cheshire

I don't care what you put in the magazine as long as it is Atari-related. I enjoy reading about the Falcon and Jaguar and I hope that you will keep up the good work.

Sean Murphy, County Durham

You have an excellent magazine in *ST FORMAT*, but it should remain exactly that – ST. As sales of the Falcon increase it would be a better idea to have a magazine dedicated to that as compatibility between the ST and Falcon appears to be fairly superficial. As for the Jaguar, it's a games console and bears no resemblance to the serious machines. A separate magazine would be more appropriate.

Philip West, Kent

The only bit I'm interested in is the news piece on the Jaguar you have every month. I know where to find it and I can read it in about five minutes so I read it in the newsagent. When I saw that this month's mag contained 12 pages on the Jaguar I ran home and got my pocket money and bought it.

More Jaguar info and reviews will sell your magazine. I know some people complain that your magazine should be 100% ST but if you want to encourage game players back, continue with the Jaguar section – and it is the Atari ST so you should cover other Atari systems too.

Cormac Fox, County Dublin

I very much enjoyed the Jaguar section and I hope you keep producing it.

Chris Kelly, Gloucester

For all those moaners out there complaining about the special issues covering the Falcon and Jaguar can I tell them that they are lucky that publishers still see it as worthwhile to support the Atari range of machines.

Mike Smith, Dorset

stf: *Opinion is greatly divided between whether you love or hate the Jaguar section. Whether it remains in the magazine and in what format was part of the reason we included questions about it in the questionnaire in the February issue. We do take note of what you have to say.*

The results from the survey are being analysed at this very moment and what they say will determine what happens to it. Thanks for all your comments.

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BRIEF AND TO THE POINT

Skinflint?
Computer disks are expensive, so do you think you could send me a different disk every month and after a month I'll send it back to you and you could send me another disk.
Martin Arnold, Suffolk

stf: *What do you think we are, your own private mail order service? So no we can't.*

Distractions
Please try to curtail your contributors' use of run-on sentences, and encourage the use of hyphens (in moderation!), colons and semi-colons. Some are worse than others about this. I know you aim to be informal, but bad grammar is quite distracting.
Shawn Thuris, CA, USA

stf: *Er, sorry. We do try our best.*

Freebies for me?
Am I entitled to a free co-processor for my Falcon as they were not available at the time when I bought my machine?
John Cusick, Kent

stf: *Afraid not – you don't need them for everything, just the occasional program so they're not standard. Get in touch with CGS who can sell you one for about £70.*

More games
One major fault of your magazine is that you have far too many utility reviews. How about more game pages like in your sister magazine, *Amiga Format?*
S Clay, Tyne and Wear

stf: *If there were more games to review we would have more game pages. Since there aren't, we can't.*

Misogyny or ohonesty?
Paula Richards is doing a great job so far but I'm surprised because I know of no females with an Amiga or ST.

stf: *Gee, thanks.*

DTPing together
Do you use *Calamus?* Then you might like to join in the geographically dispersed *Calamus* user group – get in touch with me at the address below for more details.
Bob Yates, 37 Shelford Road, Radcliffe On Trent, Nottingham, NG12 1AE

Page of coupons
One of your competitors, in its PD section, has a page of coupons to cut out and send to PD libraries to order stuff. This is a helpful idea making the ordering process easier. Could *STF* use a similar service?
S Scott, Hereford

stf: *As far as I'm concerned that page is a total waste of valuable space – surely most people who want to order from PD libraries are capable of copying the address out of the magazine onto a postcard and the details on the other side?*

PIXEL PAINTING

This month's winner is Chris Barnes of London N5 who sent us these pictures he created using Cyber Paint and the Realistic Raytracer from the subscriber's Wonder Disk. If you think you can do any better send your pics on a disk to Pixel Painting, ST FORMAT, 30 Monmouth Street, Bath, Avon BA1 2BW

THE FLY
"This fly used over 20 available shapes with the *Realistic Raytracer*. The wings were done with transparent cones and illustrate what a versatile program it is. I had to build some of his legs with *Cyber Paint* then I put the whole image together."

THE FINAL FRONT ROOM
"The preliminary stages of this were made with the *Realistic Raytracer* which were then tidied up and added into *Cyber Paint*. I spent most time on this one and it shows a spaceship colliding with a cup and saucer in deep space."

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■ If you would like to correct or add to any of the entries, please write to us at Essential Contacts, *ST FORMAT*, 30 Monmouth Street, Bath Avon BA1 2BW.

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REMOVEABLE MICE

You want a simple DIY project? You've got it. Clive Parker saws his ST apart to reposition those joystick ports

Whoever designed the position of the mouse and joystick ports on the ST – and Falcon – is probably relaxing in a padded cell somewhere in California at this very moment.

OK, so the design of the ST's keyboard means that the mouse and joysticks must be connected to the keyboard processor at some point, but it would only have taken one other plug and socket connection to the motherboard to pass the data through. Instead, however, we are stuck in the absurd position of having to lift up the ST to swap joysticks, mice or other pointing devices using the sockets underneath the keypad.

Atari aren't going to help so you have to sort it out yourself. It's not that difficult, you only need some 9-pin plugs and sockets, some ribbon cable and a soldering iron to reposition the ports at the back of your ST. There are quite a few areas along the back of your ST where you can reposition the mouse and joystick ports, the only thing you really need to watch out for is that you position the new sockets above the shielding and disk drive, if you cut the holes too low you can't put the sockets into the holes. The best position we found is above the modem port.

Soldering away

When you prepare a cable to be soldered, strip about 5mm of insulation from each individual conductor and make sure that all of the strands of the conductor are tightly twisted. Hold the cable in your vice and place the tip of the soldering iron on one side of the stripped conductor and lightly brush the end of the solder over the other side. The solder melts between the strands enabling you to make a good clean joint, now repeat for

Tools and things

You need just a few basic tools to perform this job, here's a list of what we used

- Craft knife
- Cross head screwdriver
- Flat blade screwdriver
- Long nosed pliers
- Small files
- Small hand drill
- Small vice
- Snips
- Soldering iron

A few simple tools like these enable you to modify your ST, it's not exactly the most complex set of tools you're ever going to see.

TECHNICAL BITS

It doesn't take a fully equipped workshop to perform this small modification to your ST. To move both sockets requires the following bits and pieces, you can get them from Tandy, Maplin or any electronic store. All parts listed are from the Maplin catalogue, prices may change so please contact Maplin (☎ 0702 552941) for current prices, you should be able to get all the parts for under £6.

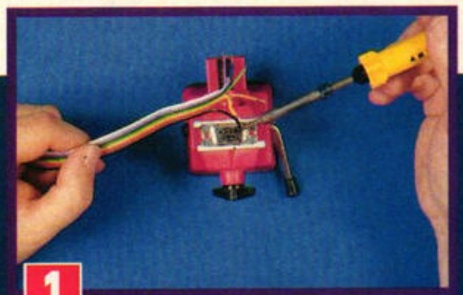
Part	Part number	Quantity	Price
9-pin D plug	RK60Q	2	45p each
9-pin D socket	RK61R	2	60p each
10-way ribbon cable	XR06G	1 metre	72p each

AN ALTERNATIVE OPTION

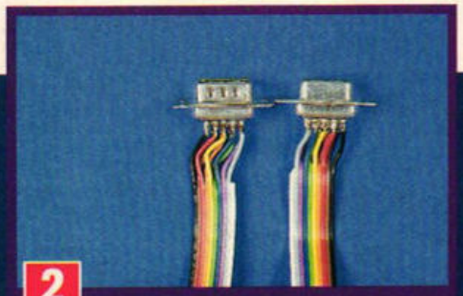
If you're not too keen about fiddling about inside your ST then there is an alternative, you can buy a pair joystick extension leads that plug into the two sockets. This extends the sockets about 15cm and enables you to swap mice and joysticks with ease. They cost about £6 and are available from most computer stores, if you can't find one locally contact Analogic Computers, they sell them for £5.95.

MOVING THE MOUSE PORT

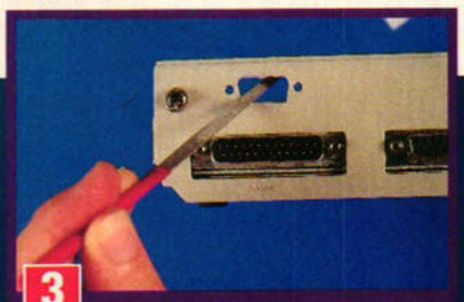
Moving the mouse port isn't a difficult job by any standards, all you need is a bit of common sense, basic soldering skills and you can make this simple modification in under an hour. In this walkthrough, we've used ribbon cable for clarity, if you prefer you can use 10-core screened cable instead



1 Cut a length of ribbon cable about 30cm in length and strip nine of the conductors at both ends, tin the conductors with solder. Now solder the nine conductors to the nine pins of the 9-pin D plug, each pin is numbered on the back of the plug.



2 Note the numbers that the coloured conductors are soldered to on the plug and solder the other ends to the same numbered connections on the 9-pin D socket. When compared you can see that the connections are mirror images of each other.



3 Using a marker pen draw around the outline of the D plug on the back of your ST, making sure that it is above the internal shielding. Use a hand drill to start the holes and cut to shape using a craft knife and small files. Drill the holes for the screws.

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ST FORMAT WARNING
If your ST is under a year old, opening the case invalidates your guarantee

each conductor. Place each of the plugs and sockets in the vice, touch the outside of each pin with the soldering iron bit and place the end of the solder into the solder connection. The solder melts into the hole, repeat for each pin. These operations are called tinning.

When you are soldering the conductor to the pin of the socket, touch the pin with the tip of the soldering iron until the solder within melts. Push the tinned conductor into the melted solder and remove the soldering iron. The solder on the conductor and the solder in the pin melt together to form a good joint. Always keep contact between the soldering iron and the plug pins and wire conductors as brief as possible, too much heat can damage both cable and sockets.

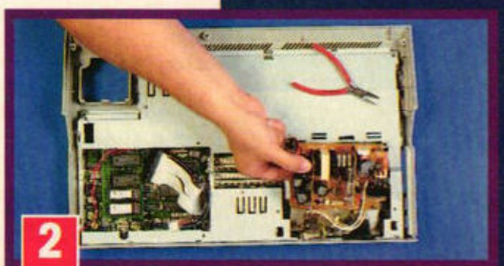
"It isn't a difficult job, all you need is a bit of common sense and basic soldering skills"

Remember that soldering irons get very hot, it's very easy to burn yourself. If you're not sure about using a soldering iron then get someone else to make the modification for you. Now take a look at our step-by-step guide and modify your ST. ***stf***

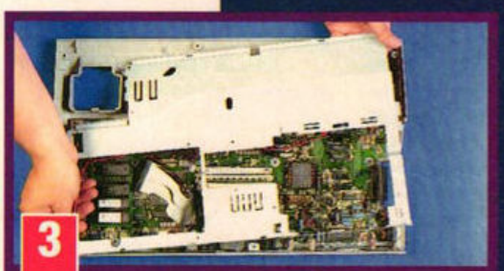
Breaking down your ST...

With any upgrade and modification you have to take your ST to bits

1 Remove all the screws from the underside of your ST, flip it over and carefully remove the top half of the case. Lift the keyboard and unplug it from the motherboard.



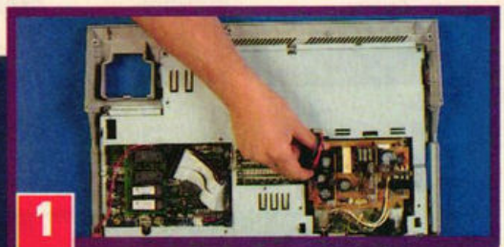
2 Remove the shield over the connections to the disk drive, disconnect the cables and remove it. This is as far as you need to go for the mouse port project.



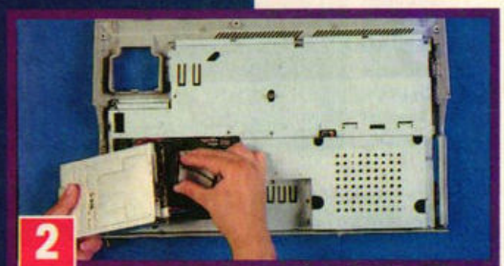
3 (XtraRAM +8 only) Unplug the power supply and remove it from the case. Untwist all tabs and remove all screws holding the shielding in place, now remove the shielding.

...and rebuilding it

Putting it back together is just the reverse of the breakdown procedure

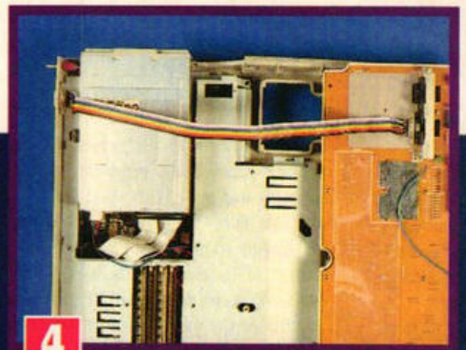


1 (XtraRAM +8 only) Replace the shielding and re-twist the tabs and replace the screws. Replace the power supply, fix it down and connect it to the motherboard.



2 Reconnect the disk drive and place it in position - you must do this before you fix the new mouse cable to the case of the ST because it runs over the top of the drive.

3 After replacing the disk drive put the shield over its connections. Return the top half of the ST's case and fix in the screws underneath. And that's it.



4 Plug the 9-pin socket into the mouse port and run the cable to the hole in the back of your ST. There is a central post between the mouse and joystick ports on the base of the ST, you can remove this to enable the cable to pass into your ST.

5 Carefully place the keyboard in position and connect it to the ST motherboard, ensure the ribbon cable is not caught. There may be a loop of excess ribbon cable, you can fold this so that it sits between the keyboard and the disk drive.

6 Fix the new mouse port in position using M3 screws and nuts, or if you prefer, M3 hex jack posts. That's everything done for the mouse port, now repeat the complete operation to move the joystick port to the back of your ST. Simple.

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ST ANSWERS

Disappearing files, stubborn hard drives and other problems solved in this month's ST Answers

A typical *Persistence of Vision* raytraced picture, it's a wonderful graphics program but it uses bags of memory.

BASIC stuff

BEGINNERS

I have recently-bought myself a second-hand 520STFM upgraded to 1MByte. Is there a special BASIC language disk for this model and, if so, where can I get it from?

W Thornley, Cheshire

A *There are several versions of BASIC for the ST. The two original versions of ST Basic are available from the ST Club (☎ 0602 455250) on disk LAN.33 for £1.25 plus postal charges. However, because this is from a PD library there are no printed manuals on learning the BASIC language supplied.*

The best commercial versions of BASIC for the ST are from Hisoft (☎ 0525 718181), Hisoft Basic 1 costs £24.95 and is suitable for any ST, Hisoft Basic 2.1 is a bit more expensive at £99.95 and is full compatible with any TOS based Atari including the Falcon030.

MUSIC AND MIDI

Andy Curtis untangles the ins, outs and thrus behind his mixer desk to bring you the best MIDI advice there is

Driven to distraction

I have a small sum of money to spend on upgrading my MIDI setup. At present I use *Pro 12* and I want to get *Cubase v3*. I have heard that I cannot run *Cubase 3* without a hard drive and 4MBytes of memory on my STE. If this is true I shall have to spend my money on a new hard drive, leaving me nothing for a sequencer program! Is this true?

Amanda Richards, Hull

stf: *Don't worry, you can run Cubase 3 quite happily from a floppy drive system with 2MBytes of memory. If you only have 1MByte then memory's a little too tight for comfort. If you do own a 1MByte machine, upgrade to 2MBytes or 4MBytes and buy Cubase 3. Later, when you have saved some more cash, treat yourself to the luxury of a hard drive.*

Freebies?

I am a MIDI file enthusiast and have collected hundreds of them over the last two years. I have been giving them away to anyone who asks for them but someone told me recently that some of them are copyrighted. Could you tell me how I can work out if a MIDI file is free for all or if it is actually copyrighted?

Steve Wilson, Basingstoke

stf: *If a MIDI file has been edited and re-saved it is almost impossible to trace its original source. Most MIDI files are distributed without any documentation and there is no file header on which copyright notices can be written.*

Generally speaking, if you purchase your MIDI files from one of the companies selling them commercially, they are copyright protected. If you download them from a Bulletin Board Service or purchase them from a Public Domain library they are likely to be in the PD. If you have any reason to doubt that a MIDI file is PD we advise you not to distribute it any further.

Three's compatible

I am considering an upgrade from my aging *Cubase v2* to the new version of *Cubase*. But I want to know if .SNG and .ARR files can load into the new program without difficulty. Can you help?

Arnold Feathershaw, Dunstable

stf: *Cubase v3 loads all the formats from v2. However, it does upgrade them when saving out so you won't be able to reload the modified files into your old version again. As a precaution, until you are confident with the new program, make sure you to keep all the old versions of your pieces of music.*

Replay DAT ?

Can you tell me if it's reliable for me to record my *Replay 16* samples onto a DAT recorder?

J Singh, Leicester

stf: *If you use large samples then disk space can become a problem, but you shouldn't experience difficulties with losing data if you back up your hard drive files regularly. Storing samples on DAT tape is a very cost effective way of keeping a library of sounds.*

Bear in mind that you have to re-sample your sounds whenever you wish to use them.

MIDI and games music

I have got quite a lot of experience using MIDI sequencing packages, mainly *Notator SL*, and I've been asked to do some music for a game written on the ST and the Amiga. I realise that a MIDI file is not the correct way to record the music, but I don't know if there's anything else available that I can use. Do you know if there's a program that is similar to a MIDI sequencer that can enable me to make music for games?

Darren Hoskins, Wetherby

stf: *The problem you have come up against is one that many musicians experience. While your talent for MIDI sequencing may be vast, making music for games requires a very different set of skills. It is necessary to program within the limitations of your ST's sound chip.*

There are many programs available to help you in your task, Gigamus and Tri-Sound are both readily available from the majority of PD libraries. Ultimately you must try your hand at games music and see how easily you take to it.

POV problems

GRAPHICS

I am having a few problems with the *POV* raytracer given away on *ST FORMAT* Cover Disk 49. I follow all the instructions to the letter but I am always returned to the command line "A:" prompt. I can't see an obvious solution to the problem, what am I doing wrong? I have a 520STFM using TOS 1.2.

Mark Scott, Wiltshire

A *You need at least 1MByte of RAM in your ST before you can run POV raytracer as it stated on the disk label.*

Switching channels

HARDWARE

I use a TV with my ST which is fine for playing games but not so good for using serious software. I am getting a high resolution monitor and want to know if I have to unplug the monitor when I use the TV and vice versa.

Alexander Burnet, Scotland

A *You must disconnect the high resolution monitor if you want to use a TV with your ST, this is because your ST detects that a high resolution monitor is connected and causes it to boot in high resolution mode. You can use a monitor switcher to disable the mono monitor and save wear and tear on your ST's monitor port. You can get a monitor switcher from First Computer Centre (☎ 0532 319444) for £17.99.*

Watch out for next month's issue of ST FORMAT for details of building your own switcher box.

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CAN *ATARIWORKS* WORK FOR ME?

SOFTWARE

I read your *AtariWorks* feature in issue 55 with great interest and I am thinking of buying the program. Can I use it with my existing setup? I have a 520STE, a high resolution monitor, 4MBytes of RAM and two floppy drives. In your review you recommended that a hard drive is used with *AtariWorks*, can I use it on my twin drive setup?

William Sterling, Scotland

stf *You can actually use AtariWorks on a two drive ST system with 2MBytes of RAM or on a single drive system with 4MBytes of RAM and a RAMdisk – but you must set up the disks following the Hisoft guidelines below.*

We recommend that you use a hard drive with *AtariWorks* because it makes using the program a lot easier. However, you can use the program with two floppy drives.

2MByte with two floppies

Use extended format disks for your AtariWorks disks – 82 tracks and ten sectors – so you can fit all the files you need onto two disks. Now make a SpeedoGDOS boot disk as described in the SpeedoGDOS manual.

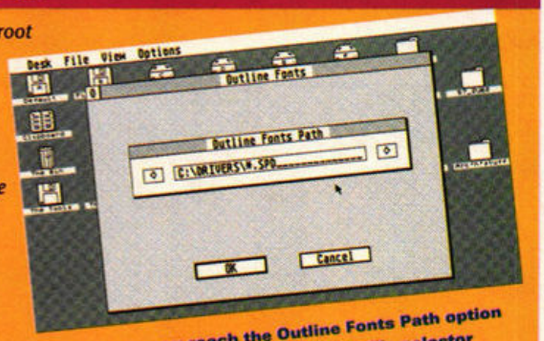
The next step is to create an AtariWorks floppy disk. You can create the disk by normal file copying, you don't need to use the installation program supplied with AtariWorks. Create a folder called WORKSYS on your work disk, this contains the dictionary or thesaurus – there's not enough room for both – and the resource files. Your work disk should contain the following files in the root directory – that means not inside a folder:

WORKS.PRG
WORKSYS (folder)

The WORKSYS folder should contain the following files:

BRITISH.OVL
BRT04.LEX or BRT55.THS – but not both!
USER.DIC
WORKSUSA.RSC
WORKMUSA.RSC
WORKCUSA.RSC

To use the twin floppy drive system you must boot with the SpeedoGDOS disk in drive A and the AtariWorks disk in drive B, now you're ready for action.



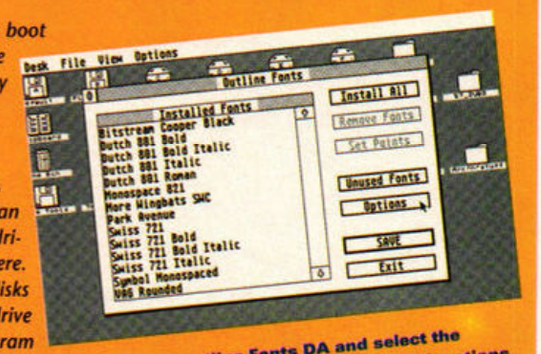
When you reach the Outline Fonts Path option just click on the path name, the file selector appears and you can select the RAMdisk from it.

4MBytes with one or two floppies

If you have an ST with 4MBytes of RAM you can load all the SpeedoGDOS fonts and printer drivers into a RAMdisk and access them from there. Create your SpeedoGDOS and AtariWorks disks as described above for a 2MByte and two drive system with one exception, the RAMdisk program you use must be the first program copied to the SpeedoGDOS disk's Auto folder.

AtariWorks is supplied with two RAMdisk programs; RAM4MEG.PRG is designed for a single drive system and copies all the SpeedoGDOS fonts to a 1.5MByte RAMdisk from drive A on booting; RAMDISK.PRG is designed for a two drive system and copies all the AtariWorks files to the RAMdisk from drive B on booting. On a two drive system boot with the SpeedoGDOS disk in drive A and AtariWorks in drive B and run AtariWorks from the RAMdisk.

To ensure SpeedoGDOS can find all of its files in the single drive system, boot the SpeedoGDOS disk and wait while all of the SpeedoGDOS fonts are copied to the RAMdisk. Now select the Outline Fonts and Printer Drivers Accessories from the Desk menu and reconfigure the file paths so that SpeedoGDOS knows where to find its files, then save the details. Now the new ASSIGN.SYS and EXTEND.SYS files you have just saved to the RAMdisk must be copied to both your SpeedoGDOS boot disk and your AtariWorks disk. The next time you boot up, SpeedoGDOS can find all of its files.



Call the Outline Fonts DA and select the Options box to go to the path search functions. The Save box is just below the Options box.

BASIC stuff

BEGINNERS

I have recentlybought myself a second-hand 520STFM upgraded to 1MByte. Is there a special BASIC language disk for this model and, if so, where can I get it from?

W Thornley, Cheshire

A *There are several versions of BASIC for the ST. The two original versions of ST Basic are available from the ST Club (☎ 0602 455250) on disk LAN.33 for £1.25 plus postal charges. However, because this is from a PD library there are no printed manuals on learning the BASIC language supplied.*

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MOUSE REPAIRS

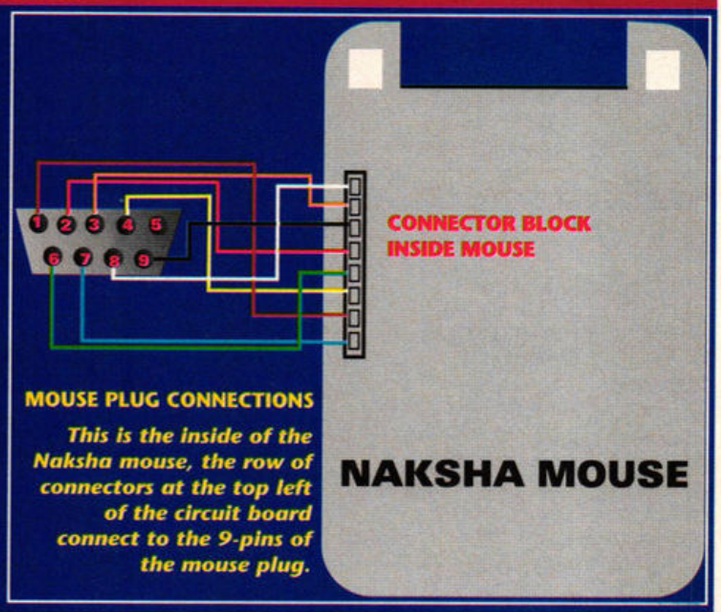
ST FORMAT £25 WINNER

I needed to rewire a Naksha mouse with a faulty cable. I have enclosed a diagram of the internal connections of the Naksha mouse along with the corresponding pin connections for the 9-pin mouse plug. I hope that this is of help to anyone else having problems with their Naksha mice.

Gordon Murray, Grangemouth

stf: *Many thanks for the helpful information Gordon, a £25 cheque is on its way to you.*

If anyone has any ST related hints, tips or cheats we want to know about them! Send them to us at ST Answers, ST FORMAT, 30 Monmouth Street, Bath, Avon, BA1 2BW. And don't forget, you could win yourself £25!



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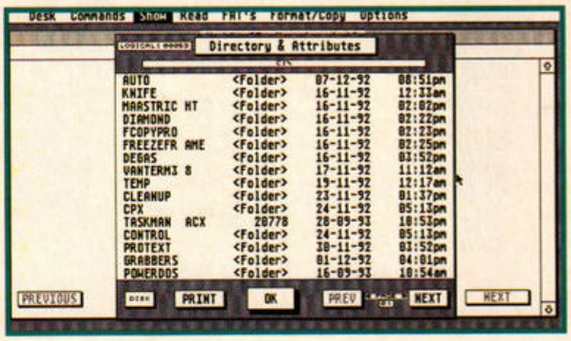
possible for me to convert it to run on my 1040STE or should I just get an ST mouse?
Neill Kirk, Essex

No, you can't convert any PC serial mouse to run with your ST. Get a PowerMouse from Power Computing (☎ 0234 843388), it only costs £15.



Make sure your disk directories don't get mangled, use *FMC* in your Auto folder to prevent trashing your disks.

Missing files

I'm suffering from a weird problem using my STFM, sometimes when I look at the contents of a disk in the drive window it lists a set of files. Later when I look at the same disk, it shows a different set of files even though I haven't deleted any or added any new ones to the disk. What's happening to my ST?
James Cope, Avon

Some older STs don't always read the drive directory of a new disk automatically when you put a new disk in the drive. The drive directory is a list of the names and physical locations of programs and files on the disk. Your ST should detect when a disk is removed and read the new disk when a drive window is selected or the file selector is called, some machines don't do this because of an error in the operating system.

This means that when you open the drive window you see a directory of the last disk to be used, this can lead to problems because your ST uses this list to save data to the disk. You could get over this by overwriting files on the disk because it saves data to areas marked as clear on the original that may contain data on the new disk. Disks can be completely destroyed by this problem.

The cure is simple, a small Auto folder program called FMC (Forced Media Change) makes your ST detect when disks have been swapped – it's available along with many other utilities on disk DMG.23 from the ST Club for £1.25. Call the ST Club on ☎ 0602 455250 for a catalogue.

STOS CORNER

We told Billy Allan to get a life and he came up with a STOS version of a life generator. Weird

Playing God

I recently came across of a program which is called *The Game of Life*. I want to write a version in *STOS*, but I cannot find out the rules which govern the cells' growth. Can you help?
Frank White, Liverpool

stf: *If there are less than two or more than three cells encircling the current cell then the current cell dies; if there are two cells around the current cell then the cell remains unchanged; if there are three cells around the current cell then the current cell becomes "alive."*

The listing below is a very basic, and slow, life generator.

```
10 key off : hide : curs off↵
   :ø click off : mode ↵
   0 : update off
20 dim G1(19,19),G2(19,19)
30 for X=0 to 19 : for Y=0 ↵
   to 19
40 G1(X,Y)=rnd(1)
50 next Y : next X
60 rem
70 for X=1 to 18 : for Y=1↵
   to 18
80 C=0
90 for X1=-1 to 1 : for ↵
   Y1=-1 to 1
100 if X1<>0 or Y1<>0 then ↵
   C=C+G1(X+X1,Y+Y1)
110 next Y1 : next X1
120 if C<2 or C>3 then ↵
   C=0 : goto 150
130 if C=2 then C=G1(X,Y) ↵
   : goto 150
140 C=1
150 G2(X,Y)=C
155 plot X*2,Y*2,C
160 next Y : next X
165 for X=1 to 18 : for ↵
   Y=1 to 18 : ↵
   G1(X,Y)=G2(X,Y) : ↵
   next Y : next X
170 if inkey$<>" " then ↵
   goto 70
```

Cheat and cheat again

In the intro to a game I am writing I want to have a 3D spaceship made up from dots flying around the screen. I know how to do 3D rotation, but even precalculating all of the points into an array it is still very slow. Is there any way I can speed this up a bit?
Jori Williams, Exeter

stf: *The two listings below should help you out. The first precalculates the 3D object into a datafile by plotting all of the points and then by storing only the areas of the screen which have dots drawn on them. The second takes the datafile and draws the animation produced by the first listing.*

Listing one

```
10 key off : hide : curs ↵
   off : click off : ↵
   mode 0 : update off
12 palette$0,$444,$555,↵
   $70,$666,↵
   $70,$70,$70,$777
13 dim CL(3)
14 CL(0)=1 : CL(1)=2 : ↵
   CL(2)=4 : CL(3)=8
15 NP=39
20 dim SPX#(NP), ↵
   SPY#(NP),SPZ#(NP)
40 reserve as work 10,↵
   free-10000
45 T=0
50 for T=0 to NP
51 SPX#(T)=rnd↵
   (280)-140 :↵
   SPY#(T)=rnd (180)-90 ↵
   :SPZ# (T)=-rnd(98)-2
60 next T
150 H=0 : S10=start(10) ↵
   : for Q=0 to 48
160 for T=0 to NP
170 K=CL(SPZ#(T)/-28)
175 F#=1.0/((200.0/SPZ#(T)) ↵
   +1.0)
180 plot SPX#(T)*F#+160.0,↵
   SPY#(T)*F#+100,K
190 SPZ#(T)=SPZ# ↵
   (T)-2 : if SPZ# ↵
   (T)<-100.0 then ↵
   SPZ#(T)=-2.0
200 next T
201 for S=0 to 31998 step 2
202 D=deek(logic+S) : ↵
   if D=0 then goto 204
203 doke S10+H,S : doke ↵
   S10+H+2,D : H=H+4
204 next S : loke S10+H,0 ↵
   : H=H+4
220 cls logic : next Q
230 bsave "star.dat",S10 to ↵
   S10+H
```

Listing two

```
10 key off : hide : curs ↵
   off : click off : mode ↵
   0 : update off
20 palette $0,$444,$555, ↵
   $70,$666,↵
   $70,$70,$70,$777
30 open in #1,↵
   "star.dat" : ↵
   L=lof(#1) : close #1
40 reserve as work 10,L :↵
   bload "star.dat",10
50 S10=start(10) : ↵
   L=L+S10-4 ↵
   : H=S10
60 logic=back
70 rem
75 cls logic
80 D=deek(H) : D2=deek ↵
   (H+2) : H=H+4 : if ↵
   D+D2=0 then goto ↵
   110 else↵
   doke logic+D,D2 : ↵
   goto 80
110 if H>L then H=S10
120 screen swap : wait vbl
130 if inkey$<>" " then ↵
   goto 75
```

Keyboard killer

I have another solution to the keyboard problem in ST Answers 53, where only the five left-hand keys of each row on the keyboard operate correctly. This can be caused by a multi-format joystick plugged in to the ST with the mode switch in the wrong position, the Quickshot QS-130F causes these exact symptoms if it is in MSX mode.
John Rogers, Nottingham

Thanks for that information John, that's one solution that got past us. By the way, what's MSX?

Spare part surgery

I need to fix my ST with several replacement parts including a keyboard and power supply unit. Do you know where I can get these bits, and how much they cost?
Gary Marsh, Bradford

The First Computer Centre stocks a variety of Atari spares including the parts you need. The keyboard costs £49.99 and the power supply unit costs £29.99. Make sure you take care when removing and handling the old power supply from your ST because some of the components can retain an electrical charge.

Stick the boot in

I have a new hard drive mechanism for my system that just refuses to auto-boot the first time my STE is powered up. After the initial failure to boot up, the drive always auto-

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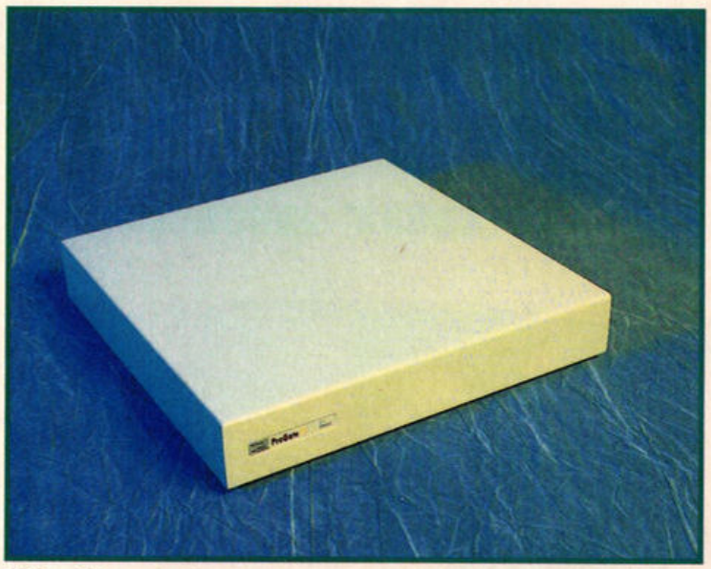

A hard drive yesterday. Do you have problems booting from drive C?

boots perfectly after every subsequent warm or cold boot. I am using the AD-SCSI plus host adaptor and ICD software and my drive is a 94MByte Fujitsu M2612s. How do I get my drive to boot first time?
Scott Pendrey, Bristol

A *Switch it on about 20 seconds before your STE and it should auto-boot. Some SCSI drives take a while to fully initialise, your drive isn't booting immediately because your STE is ready before the drive. When you reset your STE after the first failure, the hard drive is fully initialised and boots up correctly.*

If your pictures become distorted, or lose definition when you load and save them from hard drive, you may have data transfer problems.

Hard to test

HARD DRIVES

I have an STE upgraded to 4MBytes, I am getting a hard drive but I am a bit worried about the DMA chip problem found with early STEs. How can I use the hard drive to check if I am having problems?
O Johnston, Essex

A *All of the STEs in the batch with the DMA problem have been modified so you have no need to worry about your particular machine. The problem was never as big or as widespread as you might think. The method used to check if you are losing data is to load and save a Degas picture to the hard drive a few times, if the pictures starts becoming corrupted that indicates a problem.*

THE STF ADDRESS
Send all your ST related problems to ST Answers, ST FORMAT, 30 Monmouth Street, Bath BA1 2BW. Please indicate the type of problem on the envelope.

GFA WORKSHOP

Once again Mac Marsden takes your GFA problems and turns them into strings and screen savers

Back to basics

Please could you explain the differences between MID$,LEFT$ and RIGHT$? I am new to programming in *GFA Basic* and would like to understand how to manipulate text.
Darren Goodchild, Shropshire

stf: *Here goes. If you let* A$="ST FORMAT MAGAZINE" *and use this as our example string. Look at* LEFT$ *first. The command* LEFT$ *enables you to examine any string from the left hand side, if you type in and run the example listing below you find that it prints out* A$, *on the first pass of the loop you have "S" on the second pass of the loop you get "ST" until all the string has been printed.*

```
A$="ST FORMAT MAGAZINE"
For F=1 To Len(A$)
    Print Left$(A$,F)
Next F
```

Next is RIGHT$, *where you get the reverse action, on the first pass of the loop "E" is printed, on the second pass of the loop "NE" and so on until "ST FORMAT MAGAZINE" has been printed on the screen.*

```
A$="ST FORMAT MAGAZINE"
For F=1 To Len(A$)
    Print Right$(A$,F)
Next F
```

MID$ *on the other hand enables you to print or examine anywhere within your string and to look at a specified number of characters to the right of that point. In the example below you print* A$ *in blocks of three characters, so on the first pass of your loop "ST_" is printed, on the second "T_F," on the third "_FO" and so on, until you end up with "INE." Note that "_" indicates a space.*

```
A$="ST FORMAT MAGAZINE"
For F=1 To Len(A$)-2
    Print Mid$(A$,F,3)
Next F
```

Bouncing text

I wish to place a menu on-screen scrolling left and right and to have the text asking for a key input. Can you help as it seems to be very difficult?
Paul Wallace, Scotland

stf: *In the listing below you can assign some text to* a$, *but make sure that you have placed a space at each end of the string, this is to enable you to overwrite your end characters as we either print one location right or left of your present position.*

The Do and While loop continues to operate as long as no key is selected. A full explanation of program operation is held within the listing.

```
a$=" PLEASE ENTER YOUR OPTION "
x=1 ! INITIAL PRINT LOCATION
xptr=0 ! SET POINTER TO 0
DO ! BEGIN LOOP
    b$=INKEY$ ! LOOK FOR KEYPRESS
    PRINT AT(x,20);a$ ! PRINT MESSAGE
    IF xptr=0 ! =0 IF LEFT BOUNDARY FOUND
    ADD x,1 ! INCREASE X
    ENDIF
    IF xptr=1 ! =1 IF RIGHT BOUNDARY FOUND
    SUB x,1 ! DECREASE X
    ENDIF
    IF x>=55 ! IF RIGHT BOUNDARY FOUND
    xptr=1 ! ALTER OUR POINTER
    ENDIF
    IF x<=1 ! IF LEFT BOUNDARY FOUND
    xptr=0 ! ALTER OUR POINTER
    ENDIF
    PAUSE 5 ! INCLUDED TO SLOW DOWN
    MOVEMENT
    LOOP UNTIL b$<>"" ! LOOP UNTIL
    KEYPRESS DETECTED
```

Screen savers

I have just bought my first computer, an STE, and I am slowly getting used to all the jargon. Can you tell me what a screen saver is and does it save the current screen to disk? Can I program a screen saver using *GFA Basic?*
Dave McCoil, Tyne and Wear

stf: *A screen saver is a small program which alters the screen pixels and colour so that the particular program you are using does not burn itself into the monitor screen. Over a period of time this would happen and it would ruin your monitor so you wouldn't be able to use it with other programs.*

You can write a screen saver in GFA Basic, you have two options. One is to write it as a normal program (.PRG) or to write it as a Desk Accessory (.ACC). There is a very small screen saver listing below which places a randomly filled box at a randomly chosen location on the screen. It continues to do this until you press any key.

The PAUSE statement is included to slow down the display, but altering the value or removing the statement altogether results in the boxes being displayed more or less frequently.

```
DO
    b$=INKEY$
    DEFFILL 1,2,RANDOM(24)
    PBOX RANDOM(640),RANDOM(400),0 ↵
    RANDOM(640),RANDOM(400)
    PAUSE 12
LOOP UNTIL b$<>""
```

The above listing was written for high resolution so if you wish to use it in low or medium resolution, change line four to one of the two lines below;

```
LOW = PBOX RANDOM(320),RANDOM(200),0 0
    RANDOM(320),RANDOM(200)
HIGH = PBOX RANDOM(640),RANDOM(200),0 0
    RANDOM(640),RANDOM(200)
```


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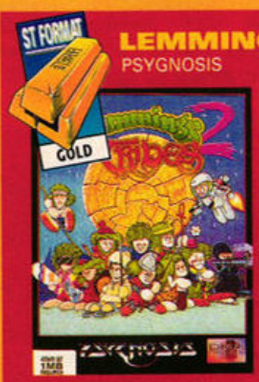

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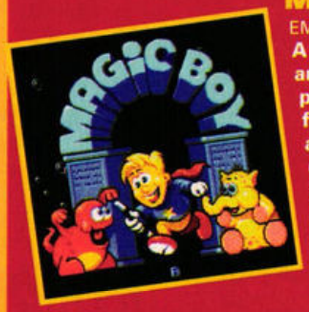

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DESCRIPTION: *Breakthru*
RRP: £129.95
***STF* PRICE:** £109.95
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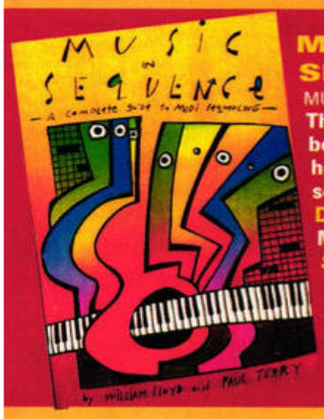

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This easy-to-follow book shows you how to write songs on a sequencer.

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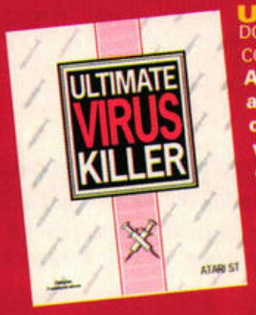

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UNLIMITED

WHAT SIMMS DO I NEED?

When you buy SIMMs check that they have a high access speed and are the correct type, either 8-bit or 9-bit. Don't worry about the speed of the SIMMs because the ST's maximum memory access time is 120ns, this means that any SIMM with speed of 100ns or lower works with the XtraRAM +8 board. Obviously, the faster the speed of the memory, the more it costs. There isn't any point in buying 70ns SIMMs because they are only accessed at 120ns. 30-pin SIMMs come in two types, 9-bit SIMMs for PC compatibles and 8-bit SIMMs for everything else. The XtraRAM +8 board is compatible with both types of 30-pin SIMMs but 9-bit PC SIMMs are usually a bit cheaper.

It's not that hard to treble your Mega ST's or STE's memory from 4MBytes to 12MBytes of RAM. Clive Parker does the business on both machines

TEN CLASSIC REASONS TO UPGRADE

So why on earth would you need 12MBytes of memory anyway? Well, we're going to give you a few ideas why you should consider it

1 Music: If you are using a powerful sequencer such as *Cubase 3* then you can quickly run out of space if you are creating large song files or you are working on more than one file at once.

2 Word processing: Many word processors limit the number of files you can work on because there isn't enough memory, with an extra 8MBytes you can cut and paste between many files at once.

3 RAMdisks: Many people use RAMdisks while they are working for fast loading and saving of documents, compared to a hard drive loading and saving to a large RAMdisk is virtually instantaneous.

4 Printer buffers: Using a large RAM based printer buffer means you can queue lots of large documents in memory ready to print and carry on with something else. DTP documents typically take a long time to be transferred to the printer.

5 Desktop publishing 1: Using DTP programs like *Calamus* use all available memory, documents with lots of graphics don't take long to eat up 4MBytes of RAM.

6 Desktop publishing 2: You can create much larger documents as single files rather than build them up from lots of smaller files.

7 Sound sampling: Sampling is one area that is really limited by memory, without direct-to-disk capability your ST needs all the RAM it can get to be able to sample long tracks.

8 Video digitising: Almost the same as sound sampling but video information takes up even more space than sound data. Roll on those five minute ST created videos.

9 Hard drive backup: Most hard drive backup and repair software uses all available memory as workspace, with 12MBytes installed it can work that much faster.

10 One-upmanship: Now you can say "I've got 12 meg in my STE, how much memory have you got in yours?" Rather sad, don't you think?

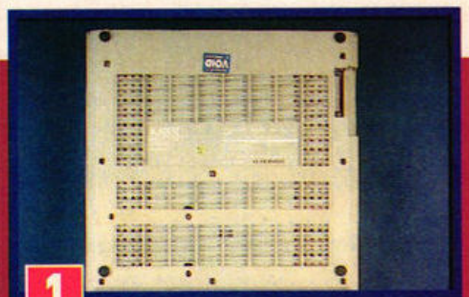
Instruction books usually make perfect sense to the people that write them, unfortunately they are often very confusing to the people they are intended for. That's why we don't just review hardware upgrades in *ST FORMAT*, we show you how to install them using step-by-step walkthroughs.

Potentially the most useful upgrades to appear for a long time are the XtraRAM +8 memory boards for the STE and the Mega ST. These boards release the ST from the 4MByte limitation imposed by its deliberately crippled MMU (Memory Management

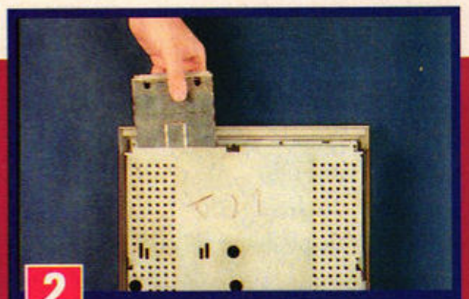
"Easy installation means that you can practically upgrade your STE in under 30 minutes"

SOUP UP YOUR MEGA

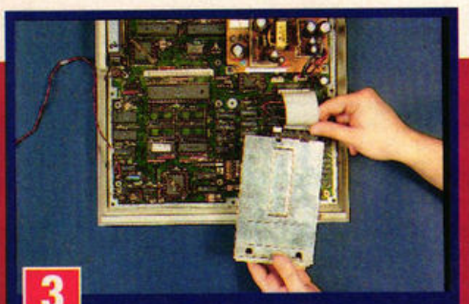
Upgrading the Mega ST is even easier than the STE, it's all very easy and well explained in the manual. If you haven't opened up your Mega ST before then follow the first three pictures in the walkthrough



1 Disconnect all peripherals from your Mega ST including the keyboard. Turn it over and remove the nine screws in the square holes and the three in the round holes, these hold the case together and the disk drive in position.



2 Carefully turn your Mega the right way up and remove the top half of the case, disconnect the cable to the battery powered clock at the back of the case. Gently raise the disk drive so you can lift the shielding up and forward to remove it.



3 Put the shielding to one side. Now lift up the disk drive and carefully disconnect the power and data cables, put the disk drive to one side until you need it later. Now you are ready to install your XtraRAM +8 board in your Mega ST.

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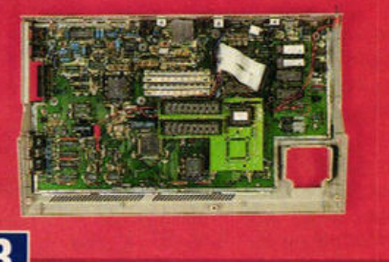
EXPANSION

UPGRADING YOUR STE

Down to the good stuff now, ripping your STE to bits, adding new bits and then trying to get everything back together again. If you're not sure how to dismantle your STE, turn to page 86 and follow the instructions there and remove the disk drive, power supply and the metal shielding, then follow the three simple steps below

1 Locate the Motorola 68000 processor at the front of your STE. The XtraRAM +8 board is L shaped, position the board with the SIMMs facing up and to the left and carefully line up the pins on the underside with the 68000 socket.

2 Make sure there are no stray wires trapped under the board. Once you have the board correctly lined up over the 68000 socket press the board down gently but firmly. Quite a lot of pressure is required to get the board fully inserted.



3 It's always a good idea to make sure that any other modifications like the TOS 2.06 upgrade are still correctly connected while your STE is open. Once the RAM board is firmly in place you can start putting your STE back together. That's it!

Unit) which was designed when 128K was considered a large amount of memory.

Of course it's not as easy as that to upgrade all STs with more memory, these upgrades are limited to the STE or Mega ST – you can't upgrade an STFM to 12MBytes yet.

It's so easy

Marpet Developments have continued with their policy of making memory upgrades simple to install and use. Both versions of the XtraRAM +8 simply plug in to both types of ST with just a single power connection to be made in the Mega ST. You only need a couple of very basic tools, a couple of cross-head screwdrivers and some long nosed pliers to untwist the tabs on the shielding.

There are a few conditions that your system must meet before you can use the XtraRAM boards. You must already have 4MBytes of RAM in your ST and be running TOS 2.06, if your system meets these conditions then you can just plug in and go. There are two RAM configurations available for each board, you can use the STE board with two 1MByte SIMMs or two 4MByte SIMMs to give you a total of 6MBytes or 12MBytes, including the 4MBytes of internal RAM already inside your STE. The Mega ST board can use either four or eight individual 1MByte SIMMs to give you a grand total of 8MBytes or 12MBytes of RAM when combined with the internal RAM. This easy installation means that you can practically upgrade your STE in under 30 minutes. ***stf***

WHERE DOES IT ALL END?

So you've upgraded from a meagre 0.5 MByte to 1MByte, 1MByte to 2MBytes, 2MBytes to 4MBytes and now you've got 12MBytes of RAM toasting gently inside your STE. Surely that's enough for you? Maybe not, RAM works in the same way as cash – the more you have, the more you need.

4 Get the XtraRAM +8 board and locate the 68000 expansion bus, this is a long white socket to the left of the front edge of the power supply. Make sure you have the RAM board the correct way round with the SIMMs sockets towards the rear.

5 Carefully line up the XtraRAM +8 board plug with the expansion socket then press it firmly into place. The row of pins on the RAM board directly above the expansion bus theoretically enables another card to be mounted in your Mega ST.

6 The last part is to connect the power connection, this is a red flylead with a spring connector. This connector must be connected to the plus side of one of the large capacitors on the main circuit board. You can now assemble your Mega ST.

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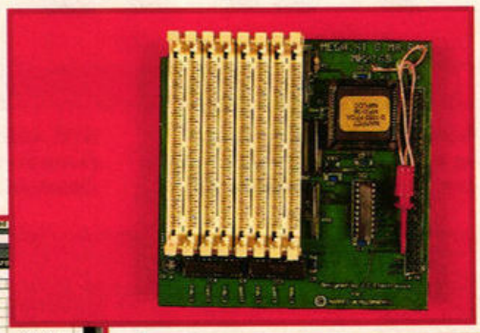
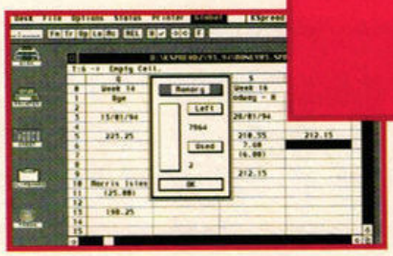
XTRARAM+8

So you think your ST is limited to 4MBytes of RAM, do you? Well, it's not, you can now upgrade your STE to a massive 12MBytes using the XtraRAM +8 board and a wallet full of cash.

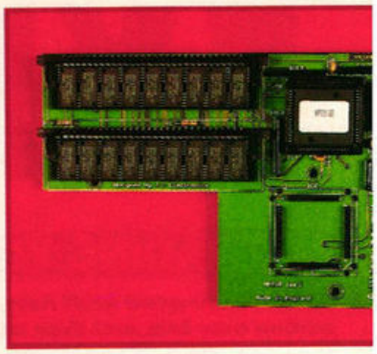
It's very frustrating getting an out of memory message when you're using your ST and you've already got 4MBytes of RAM, the XtraRAM upgrade is the perfect solution. You can add more RAM to your ST in stages, 2MBytes or 8MBytes on the STE and 4MBytes or 8MBytes on the Mega ST, so you don't have to buy a full 8MBytes of SIMMs straight away. To use the board you must be using TOS 2.06 in your ST.



The Mega ST board is more traditional in design, it's a standard Mega card with eight SIMMs sockets enabling four or eight 1MByte SIMMs to be added.



Even a golden oldie like *KSpread 2* survives the conversion process to give you almost 8MBytes of space to create a really big spreadsheet.



Compact and clever design enables you to squeeze extra memory into your STE, you can either add 2MBytes or 8MBytes of SIMMs into the two slots.

It's RAM-tastic

The STE board is a masterpiece of design, it's compact and very easy to install. It has sockets for two SIMMs to add to the 4MBytes already in your STE, these can either be 1MByte or 4MByte SIMMs depending on how far you wish to increase your memory capacity.

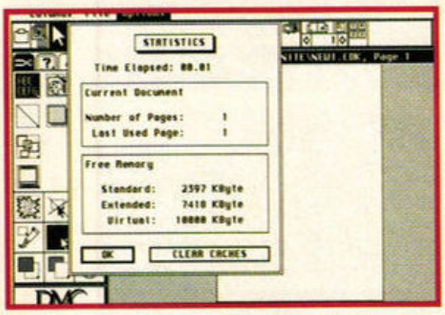
Installing the Mega board is just as easy, and in use both upgrades perform in a similar fashion. After installation all that's needed to get the extra 8MBytes switched on is a small initialisation program, you can either run this from the Desktop or just shove it in the Auto folder and forget about it. Using the extra memory with software is reasonably easy, a lot of newer software designed to be compatible with the TT or Falcon automatically detects the extra RAM and uses it as if it were TT RAM; *Calamus SL* and *GEM-View* detected and used the extra memory first time.

Older software does not automatically load into or use the extended memory, Marpet have managed to solve this problem by supplying a small utility that alters the header information of a program file so that it can recognise the extra RAM.

In practice you can modify almost all of your existing software to be compatible with the XtraRAM +8. We converted over 50 programs with less than five percent failing to recognise the new hardware, the only major disappointment was that we were unable to get the *Replay 16* editor software to run when converted.

Conclusion

If you want or need the extra memory that the XtraRAM +8 boards provide, then this upgrade is a must. The fact that it's so easy to install and use is a great plus point, and while it is quite expensive to buy with a full measure of RAM, it's still pretty good value for money especially for business and music purposes. Get it, because it's worth it. ***stf***



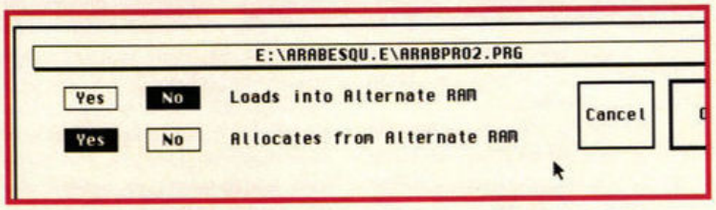
***Calamus SL* is one of the programs that can recognise and use extended memory without conversion. Here we can see that *Calamus* has 2,397K of ST RAM, 7,410K of extended RAM and 10,000K of virtual RAM available.**

SOME SYSTEM REQUIREMENTS

You can't just upgrade any STE or Mega with the XtraRAM +8 boards, there are certain limitations on your system setup.

For a start you must have at least 4MBytes of RAM installed in your ST because of the way the XtraRAM +8 boards work. Next, you must have TOS 2.06 installed in your ST or be running MultiTOS, the extended memory can only be accessed by the newer operating systems. Realistically, using MultiTOS on an ST is slow and practically unuseable unless you have a hardware accelerator installed.

These limitations are unlikely to be a problem to anyone buying an XtraRAM +8 board because they'll already have a comprehensive setup.



Using the conversion program you can alter any program that doesn't recognise the extended memory, just click on the boxes and press <Return>.

SOFTWARE CONVERSIONS

Here's some of the software we successfully ran with the XtraRAM +8, some we converted and some were already compatible. Convert your back-ups of software, not your originals

A Copy
Arabesque Professional
Atari Works
Becker CAD ST
Calamus 1.09n
Calamus S
Calamus SL
Cubase 3
Cyberpaint
DA's Image
DA's Vector
Degas Elite
Deluxe Paint
Diamond Back 2
Diamond Edge
Easy Text Pro Vector
Fastcopy Professional
First Word Plus 3.2
GFA Basic 3.5
Hisoft Basic 2
Home Accounts 2
Hyperpaint 2
K Spread 2
Knife ST
LDW Power
Outline Art
Padd 2
Protext 4.3, 5.5, 6.0
Raystart
SpeedoGDOS
ST Zip
Stalker 3
Steno
Studio Photo
That's Write 2
True Image
True Paint
UVK 6.0
Vanterm 3.8
Write On

XtraRAM +8

£60 0.5 MByte, £349.99 STE populated to 8MBytes, £310 Mega ST populated to 8MBytes. Call to confirm current prices due to fluctuations in the price of RAM. Marpet Developments
☎ 0423 712600

Highs
- Easy to install and use.
- Works with most software.
- You don't have to add 8MBytes straight away.

Lows
- SIMMs are still quite expensive.
- TOS 2.06 required.

92

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BYTE SIZED

Memory, you either have it or... What? Oh yes. Memory, you either have it or you need it. Clive Parker examines the ST's synapses

Your ST's memory is one of the most vital parts of the machine, without those vital RAM chips nothing on your ST would run at all. Even the screen display is stored in a special area of memory, if you have faulty RAM chips it often results in a garbled screen display on your monitor. So how does your ST use its memory? When you switch on your ST it goes through a standard boot sequence after which it displays the Desktop on your monitor screen. Before the Desktop screen appears several complex operations take place inside your ST.

"Discs are under development that enable you to record and erase information on a CD disc"

The operating system is shifted from ROM (Read Only Memory) into RAM (Random Access Memory), all memory, peripheral and operating system routines are initialised, Auto folder programs run and install themselves in memory (if required) and Desk Accessories are loaded.

The boot procedure happens with all versions of TOS, TOS 1.6 and 1.62 in the STE pause for around ten seconds to enable any connected hard drives to initialise while TOS 2.06 and higher versions also perform a memory test before booting up.

Desktop control

The ST's Desktop is actually a program running in memory, it's a kind of shell program that enables you to access your ST's internal systems, load programs, access drives, other peripherals and Desk Accessories. Some programs – usually games – bypass the GEM part of the operating system and load themselves directly into memory from auto-booting disks, this provides around 32K of extra memory for the program to use.

Because GEM has been bypassed, auto-loading programs can't use any of the usual GEM functions such as windows, menus and dialog boxes.

Different types of memory

There are two main types of memory in all computers, RAM and ROM. All other kinds of memory are sub-sets of these two basic types. RAM stands for Random

MEMORABLE JARGON BUSTERS

It's hard getting to grips with all the terms you come across when you're working with memory, here's a few of the more common expressions explained in this extra large jargon busters box

Bit: Single unit of memory storage, derived from Binary digIT.

Byte: A byte is eight bits of memory storage.

DMA: Direct Memory Access, a special processor in your ST which is designed to move large chunks of data between disk drives and memory.

DRAM: Dynamic Random Access Memory, inexpensive and easy to make memory chips.

Firmware: Software stored on ROM chips is known as firmware, it's software that cannot be erased from the chip.

GByte: Gigabyte, 1,024 megabytes (1024MBytes) of memory storage. Also written as Gb.

K: Kilobyte, 1,024 bytes of memory storage.

MByte: Megabyte, 1,024 kilobytes (1024K) of memory storage. Also written as Mb.

MMU: This stands for Memory Management Unit, the processor that supervises the memory of your ST. When designed this processor was deliberately limited to give the ST its 4MByte upper memory limit.

Nibble: Half a byte or four bits of memory storage.

RAM: Random Access Memory, temporary memory storage for programs and data while your ST is running. Everything stored in RAM disappears when you switch off your ST.

ROM: Read Only Memory, permanent memory storage. Software stored on ROM is electronically written onto the chip when it's manufactured. The ST's TOS operating system is typically stored on two or six ROM chips.

SIMM: Single Inline Memory Module, RAM chips mounted on a small card with an edge connector you can simply plug into the special sockets in the STE or on the Marpet XtraRAM memory upgrade boards for the STFM.

SIP: A Single Inline Package, exactly the same as a SIMM board except it has a row of pins instead of an edge connector. Occasionally, some STEs are fitted with SIPs.

Kinds of ROM

Standard ROM chips can't be erased, the software on them is permanently fixed in place. There are two kinds of ROM chips that can be erased and reprogrammed with new information, these are EPROM (Erasable Programmable Read Only Memory) and EEPROM (Electrically Erasable Programmable Read Only Memory).

Special tools called EPROM blowers are used to transfer software from disk to the chips where the data remains fixed just like in a normal ROM chip. The data can be erased later by using a high-intensity UV light (EPROMs) or by electrical signals (EEPROMs). New information can then be written to the blank chip.

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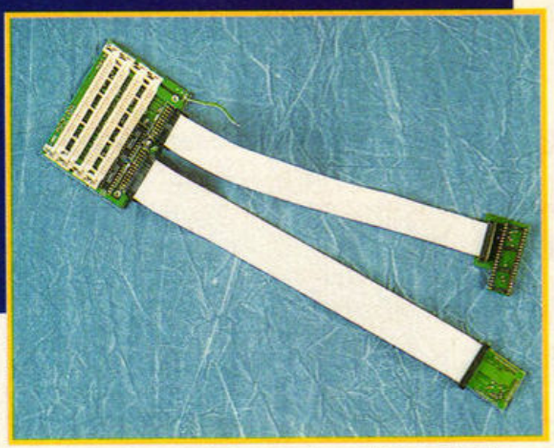
UPGRADE YOUR ST

Just about the best memory upgrade board for your STFM is the XtraRAM Deluxe from Marpet Developments. It's a simple to install upgrade that enables you to expand the memory of your STFM to 1MByte, 2MBytes or 4MBytes of RAM using standard 30-pin SIMMs. If you have an 520 STE then you can just plug in two 256K SIMMs to increase the memory to 1MByte.



It's small, it's neat and it's wonderful. Use the XtraRAM Deluxe to expand the memory of your STFM.

Access Memory. RAM memory is a temporary storage area where software, data and operating system information is stored when your ST is running. As soon as you turn off your ST all data in RAM disappears, that's why you should always ensure that you have saved anything you are working on before you switch off or reset your ST.

This type of memory is called random access because the main processor can access any part of RAM directly without looking through any other area. There are two main types of RAM, DRAM (Dynamic Random Access Memory) and SRAM (Static Random Access Memory).

DRAM chips are made up of thousands of tiny capacitors which store data bits in binary format. When any capacitor is charged it represents a binary 1, when discharged it represents a binary 0, this is perfect for storing software and data. DRAM chips are compact so a lot of memory capacity can be squeezed onto each chip, they are also cheap and easy to manufacture so they are the most common type of RAM chip available.

SRAM also stores data in binary format, but instead of storing the information as a charge on a capacitor the SRAM contains solid state switches called flip-flops. Each switch can be in one of two positions representing 1 or 0 in binary code. SRAMs are more complex than DRAMs and the circuits are much larger, this means that less data can be stored on an SRAM chip. SRAMs are used mainly because of their high operating speed.

ROM stands for Read Only Memory. Any data stored in ROM memory is permanently fixed on the chip and remains intact even when the power to the chip is off, ROMs are usually used as operating system chips.

CD-ROM and the future

You've probably heard of CD-ROM by now. CD-ROM is a cross between a normal hard drive and ROM memory, data is permanently recorded onto a CD-ROM disc and the data can be moved into your ST's memory using a CD-ROM drive. It's called a ROM disc because you can read data from the disc but you are unable to alter the contents or save data to the disc, exactly like a ROM chip. A CD-ROM disc can store up to 650MBytes of software.

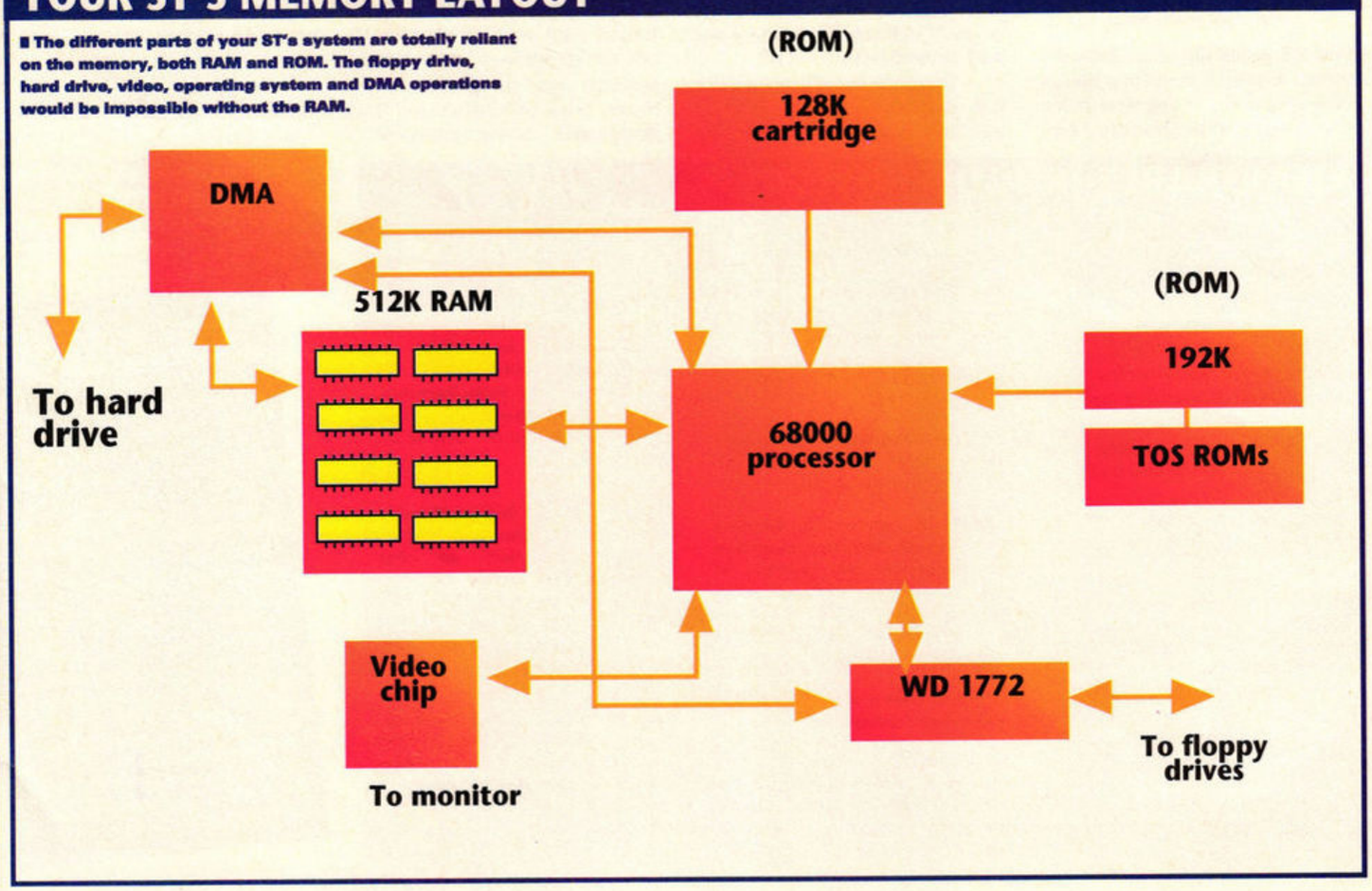
"Erasable magneto-optical drives store up to 128MBytes of software on 3.5inch optical discs"

New drives and discs are under development that enable you to record and erase information on a CD disc, perhaps this could be called CD-RAM. You can already buy erasable magneto-optical drives that store up to 128MBytes of software on 3.5inch optical discs, these are like small CD-ROM discs in a plastic case that you use in the same way as a standard floppy disk.

Larger capacity optical discs are already being developed, who knows how much computer information can be stored on disc in ten years from now? ***stf***

YOUR ST'S MEMORY LAYOUT

The different parts of your ST's system are totally reliant on the memory, both RAM and ROM. The floppy drive, hard drive, video, operating system and DMA operations would be impossible without the RAM.



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(technical is available from 2-5.30pm)

series 900

The Series 900 HD features a buffered through port, optional battery backed clock, high speed 20ms seek rate, write protect switch, power supply and ICD interface and utility disk.

Series 900 52QMB **£299**
Series 900 120MB **£349**

icd link

The 'Link' from ICD includes an external SCSI host adaptor, allowing the Atari ST to connect to external SCSI devices e.g external hard disks, optical drives and CD-ROM drives which were originally designed for the Apple Mac, IBM PC etc. Just plug-in and no power supply is needed.

ICD 'Link' **£89**
AD SCSI Plus **£89**
AD SCSI ST **£79**
ICD Pro Utilities **£39.95**

power scanner

The award winning scanner from Power Computing allows you to scan up to 400DPI in real-time greyscale, with an autoscan rate detect. The scanning software included allows you to edit and manipulate any image you scan.

£99

floptical drive

The Floptical stores 20MB of data on a 3.5" disk. ICD 'Link' is required.

Floptical drive **£329**
Floptical disk ..... **£22** *each*

printer range

Huge range of printers available, Star, Citizen, Hewlett Packard and Epson. Please telephone for prices and your requirements.

miscellanous products

PowerMouse **£15**
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100 Branded Disks + Box **£49**
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Intruder 1 Joystick **£29.99**
Maverick 1 Joystick **£15.99**
Python 1 Joystick **£9.99**
Apache 1 Joystick **£7.99**

power drive

The award winning external disk drive which includes a virus blocker, built-in Blitz Turbo and is able to boot from drive B. This is the ultimate in external disk drives for the Atari ST computer.

£60

power drives

Power Computing manufacture many disk drives for the Atari ST, all of which are made from high quality components.

PC720P (Inc. PSU) **£55**
PC720I (Internal) **£39.95**
(360K upgrade drive, needs case modification)
PC720 OI (Official internal) .. **£45**
(720K replacement drive)

drive-b cable

If you have an internal drive that is not compatible with 'boot from drive B', this cable will solve your problem.

Drive-B Cable **£9.95**

blitz turbo

Back-up disks at lightning speeds, Blitz copies from the internal to the external drive and cleverly by-passes your ST's controller chip. In around 40 seconds you can back-up an ST disk, what's more you can now switch between your disk drive and Blitz Turbo without disconnecting your Blitz interface. Probably the best Atari disk copier on the market. (1988 Copyright act applies)

Blitz Turbo **£25**

supra modems

Supra Modems come complete with English phone cable, RS232 serial cable, heavy duty PSU and comms software, send and receive fax's, 100% compatible with industry standard 'AT' command codes, free trial offer to various services and V42 bis data compression.

Supra Fax Modem+ **£119**
Supra Fax Modem 32BIS **£249**

ring interruption

Use with Ultimate Ripper or SuperMon. Stop games or programs in their tracks, search for infinate lives and hack with the code. A press of a key and the program is restarted.

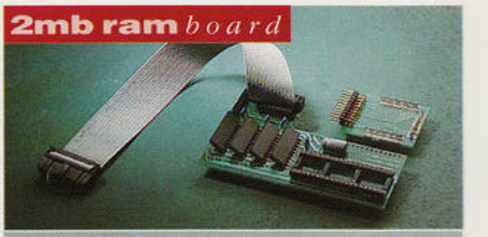
Ring Interruption **£15**

super mon

SuperMon comes with all the features of the 'Ultimate Cartridge' and more. Some of the features included with SuperMon are: Program Switcher- allows two programs to be in the memory simultaneously and switched between at the touch of a key, Printer Spooler- allows files to be printed at the same time as other tasks, Comprehensive Debugger- disassemble programs and step through them, intercept OS calls, search memory or find where a routine is called from automatically, Diagnostics Function- check the internal functioning of your ST disk analyser, custom format disks, read/write sectors, hide files, Utilities- the SuperMon also has many utility functions available, including reset proof RAM disk, mouse trap function, time display, screen snapshot and 50/60Hz display toggle.

Ultimate Cartridge **£25**
Including SuperMon **£35**

2mb ram board



The Atari RAM Board requires no soldering and plugs directly inside the ST using the latest capacity RAM chips. Full fitting instructions are supplied. The ST RAM Board is available either as a 2MB or 4MB RAM expansion.

£99

4MB RAM Expansion **£169**
1MB SIMM for STE **£35**
512K RAM STFM **£45**

order form

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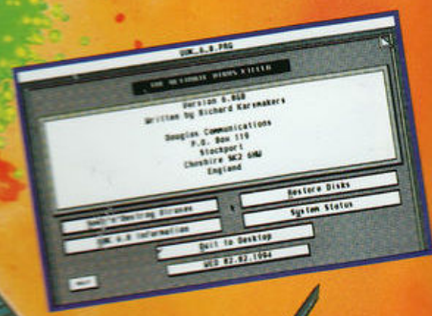

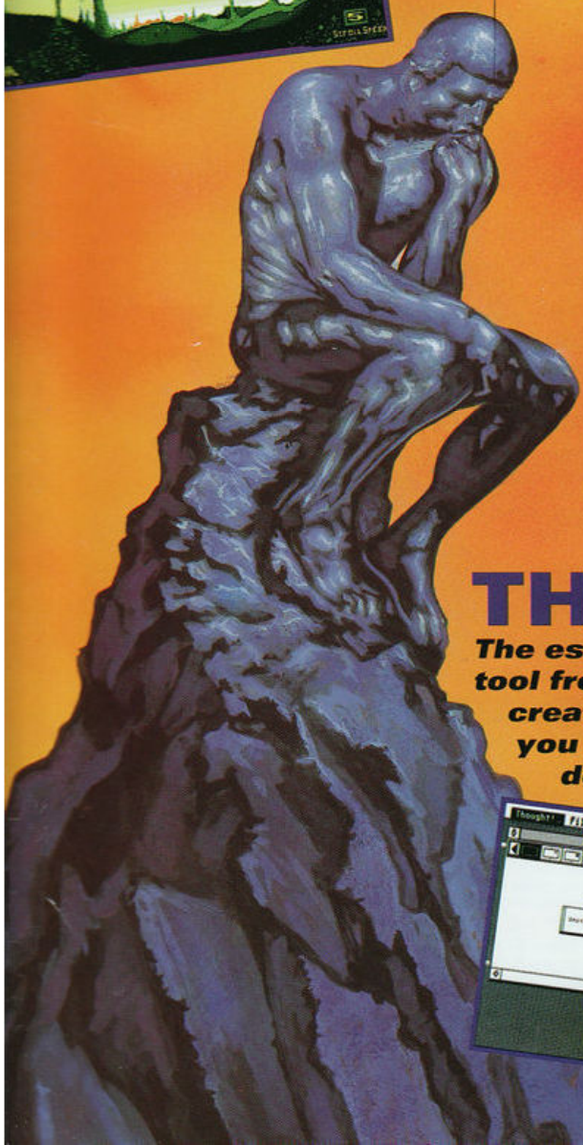

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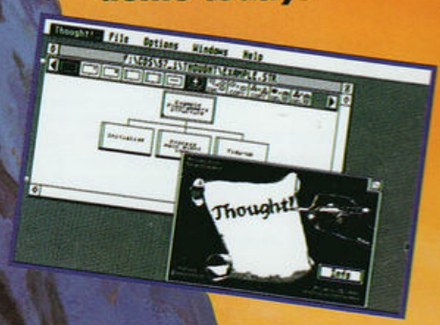

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